

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

**THE GENDER WAGE GAP IN NEW ZEALAND:  
THEORY AND EVIDENCE**

**A Thesis presented in partial fulfilment of the requirements for the degree of a  
Master of Business Studies at Massey University**

**Stephen Michael Summers**

**1999**

## **ABSTRACT**

This thesis focuses on the issue of the gender wage gap in New Zealand that has been a prevalent topic in most countries and in a variety of academic circles over recent decades. Those who conclude that females are still being discriminated against in the labour market point to the use of a combination of policies, such as affirmative action and comparable worth, as a possible solution. Opponents to this view contend that there are many reasons that, combined, explain why females often earn less than their male counterparts. This thesis, encompassing a variety of statistics, illustrates that females have made, and continue to make, strong progress in all facets of the labour market. Thus, in conclusion, legislation to introduce new policies to narrow any gap is a road fraught with too many dangers and one that we do not need to go down.

## ACKNOWLEDGMENTS

I wish to thank all those lecturers and fellow students within the various departments at Massey University for their contributions and ideas towards this thesis. Especially, I would like to take this opportunity to gratefully acknowledge that I am indebted to my supervisor Stuart Birks for his time, assistance and ideas that he bestowed on me. Also, I wish to thank my partner for spending many hours editing and checking my thesis, and for the encouragement and ideas she gave me.

This thesis is dedicated to my mother and father who have always provided love and support throughout my life and encouraged me to make the most of every opportunity presented.

# TABLE OF CONTENTS

<b>ABSTRACT</b>	i
<b>ACKNOWLEDGMENTS</b>	ii
<b>TABLE OF CONTENTS</b>	iii
<b>LIST OF FIGURES</b>	vii
<b>LIST OF TABLES</b>	ix
<b>LIST OF ABBREVIATIONS</b>	xii
<i>CHAPTER 1</i>	
<b>INTRODUCTION</b>	1
1.1 Background of the Thesis	1
1.2 Objective of the Thesis	4
1.3 Structure of the Thesis	4
<i>CHAPTER 2</i>	
<b>THE EDUCATION SECTOR AND THE GENDER WAGE GAP</b>	6
2.1 Introduction	6
2.2 Attendance, Retention and Qualifications by New Zealand Students at Secondary School	7
2.3 Subjects of Study	14
2.3.1 Mathematics and Science Studies	19
2.3.2 Standardised Tests	22
2.4 Classroom Participation	23
2.5 Issues of Self-Esteem	25

2.6 Secondary School Education - Some Conclusions	26
2.7 The Tertiary Sector in New Zealand	27
2.8 Females at New Zealand Universities	28
2.8.1 Premarket Discrimination	32
2.8.2 Business Subjects and Degrees in New Zealand	34
2.8.3 Engineering Degrees in New Zealand	38
2.8.4 Psychology Degrees in New Zealand	39
2.9 Females at Teaching and Technical Institutions	41
2.10 Some Conclusions	46

### ***CHAPTER 3***

<b>OCCUPATION AND FAMILY RESPONSIBILITIES AND THE GENDER WAGE GAP</b>	47
3.1 The Position of Females in the New Zealand Labour Market	47
3.2 Occupations in the New Zealand Labour Market	49
3.3 Gender Dominated Occupations in the New Zealand labour Market	52
3.4 Largest Female and Male Occupations	57
3.5 Occupational Segregation in the New Zealand Labour Market - Horizontal Segregation	61
3.6 Occupational Segregation in the New Zealand Labour Market - Vertical Segregation	65
3.7 Effects of Occupational Segregation on the Work Force	70
3.8 Pay Differentials in the New Zealand Labour Market	73
3.8.1 General Comparisons of Wages	73
3.8.2 Full-Time and Part-Time Workers	76
3.8.3 Wages and Family Responsibilities	77

3.8.4 Surveys of New Zealand Graduates	83
3.9 Some Conclusions	88
 <b>CHAPTER 4</b>	
 <b>THE GENDER WAGE GAP: THEORIES AND POLICIES</b>	
4.1 Introduction	90
4.2 Causes of Differences in Earnings: Discrimination	91
4.2.1 Consumer Discrimination	92
4.2.2 Employer Discrimination	92
4.2.3 Employee Discrimination	93
4.2.4 Statistical Discrimination	94
4.2.5 Outcomes of Discrimination	95
4.3 Causes of Differences in Earnings: Human Capital	97
4.3.1 Human Capital: Formal Education	98
4.3.2 Human Capital: Occupational Training	99
4.3.3 Interruptions to Acquirement of Human Capital	101
4.3.4 Competing Forms of Human Capital in the Work Place: Baragwanath Interview	103
4.4 Causes of Differences in Earnings: Parental Leave and Family Responsibilities	105
4.4.1 Family Responsibilities: Gendall (1997) Survey	106
4.4.2 Family Responsibilities: Wilson (1999) Article	109
4.5 Causes of Differences in Earnings: Compensating Differentials	112
4.6 The Employment Contracts Act	116

4.6.1 Structural Inequality	117
4.6.2 Collective Contracts	117
4.6.3 Knowledge Barriers	118
4.7 Affirmative Action Policies	119
4.7.1 Affirmative Action: Canadian Evidence	121
4.8 Comparable Worth Policies	123
4.8.1 Assessing Comparable Worth: Job Evaluation	124
4.9 Some Conclusions	127
<b>CHAPTER 5</b>	
<b>SUMMARY AND CONCLUSIONS</b>	130
5.1 Discussion of Results	130
5.2 Limitations and Results	132
<b>APPENDICES</b>	134
Appendix A: Occupational Classifications	134
Appendix B: EMLF and EFLF Occupational Listing	135
Appendix C: Worker Earnings Equations	141
<b>REFERENCES</b>	142



## LIST OF FIGURES

Figure 2.2.1	Attendance of 5 <sup>th</sup> Year Students at New Zealand Secondary Schools, 1965-1995.	9
Figure 2.2.2	Attendance of 6 <sup>th</sup> Year and Over Students at New Zealand Secondary Schools, 1965-1995.	9
Figure 2.2.3	School Participation Rates by Age and Sex, 1997.	10
Figure 2.2.4	Retention Rates for 14-16 Year Olds, 1986-1998.	11
Figure 2.2.5	Retention Rates for 14-17 Year Olds, 1986-1998.	11
Figure 2.2.6	Retention Rates for 14-18 Year Olds, 1986-1998.	11
Figure 2.8.1	Total Number of Students Attending New Zealand Universities by Gender, 1965-1997.	29
Figure 2.8.2	Internal Full-Time Students Attending New Zealand Universities by Gender, 1965-1997.	29
Figure 2.8.3	Internal Part-Time Students Attending New Zealand Universities by Gender, 1965-1991.	29
Figure 2.8.4	Extramural Students Attending New Zealand Universities by Gender, 1965-1991.	30
Figure 2.8.5	New Zealand Secondary Students Enrolled in Seventh Form Accounting, 1965, 1970, 1975, 1980, 1985 and 1990.	35
Figure 2.8.6	Bachelor Degrees in Accounting Awarded in New Zealand, 1975, 1980, 1985 and 1990.	35
Figure 2.8.7	New Zealand Secondary School Students Enrolled in Seventh Form Economics, 1965, 1970, 1975, 1980, 1985 and 1990.	36
Figure 2.8.8	Bachelor Degrees in Economics Awarded in New Zealand, 1965, 1970, 1975, 1980 and 1989.	36
Figure 2.8.9	Bachelor Degrees in Engineering Awarded in New Zealand, 1970, 1975, 1980, 1985, 1990 and 1995.	38
Figure 2.8.10	Bachelor Degrees in Psychology in New Zealand, 1965, 1970, 1975, 1980, 1985 and 1989.	40

Figure 2.9.1	Students Enrolled in Primary Teacher Training in New Zealand, 1965, 1970, 1975, 1980, 1985 and 1990.	41
Figure 2.9.2	Students Enrolled in Secondary Teacher Training in New Zealand, 1965, 1970, 1975, 1980, 1985 and 1990.	42
Figure 3.1.1	Labour Force Participation Rates for Males and Females in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.	47
Figure 3.1.2	Percentage Change in Number of Males and Females Employed in New Zealand, 1971-1976, 1976-1981.	49
Figure 3.1.3	Percentage Change in Number of Males and Females Employed in New Zealand, 1986-1991, 1991-1996.	49
Figure 3.2.1	Breakdown of New Zealand Part-Time Workers by Hours Employed Per Week, 1996.	51
Figure 3.2.2	Breakdown of New Zealand Full-Time Workers by Hours Employed Per Week, 1996.	51
Figure 3.8.1	Total Earnings for the Female/Male Ratio of Average Hourly Earnings (1988-1998) and Average Weekly Earnings (1977-1998) in New Zealand.	75
Figure 3.8.2	Total Earnings for the Female/Male Ratio of Average Hourly and Weekly Ordinary Time in New Zealand, 1973-1998.	75
Figure 3.8.3	Total Earnings for the Female/Male Ratio of Average Hourly And Weekly Overtime in New Zealand, 1973-1998.	75
Figure 3.8.4	Full-Time Workers by Age Bracket in New Zealand, 1996.	78
Figure 3.8.5	Part-Time Workers by Age Bracket in New Zealand, 1996.	78
Figure 3.8.6	Ratio of the Percentage of the Female/Male Ratio of Incomes for those Earning \$40,000+ in 1986, 1991 and 1996.	81
Figure 4.2.1	Unemployment Rate for Males and Females in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.	96

## LIST OF TABLES

Table 2.2.1	Percentage Change in Age Group for the Total New Zealand Population, 1966-1996.	8
Table 2.2.2	Numbers of Pupils Attending New Zealand Secondary Schools, 1965-1995.	8
Table 2.2.3	Highest Attainment of School Leavers by Gender, 1987-1997.	12
Table 2.2.4	Percentage of Sitting Students Awarded Higher Grades in New Zealand, 1997.	12
Table 2.3.1	Subjects Taken by All New Zealand Secondary School Students in Form Five at 1 July, 1965, 1970, 1975, 1980, 1985 and 1990.	15
Table 2.3.2	Subjects Taken by All New Zealand Secondary School Students in Form Six at 1 July, 1965, 1970, 1975, 1980, 1985 and 1990.	16
Table 2.3.3	Subjects Taken by All New Zealand Secondary School Students in Form Seven at 1 July, 1965, 1970, 1975, 1980, 1985 and 1990.	17
Table 2.3.4	Percentage of Year 3 School Certificate Students Gaining A or B Grades in Selected Subjects, 1996.	20
Table 2.3.5	New Zealand University Bursaries/Entrance Scholarship Examinations: Percentage of Papers Graded S, A or B in Selected Subjects, 1997.	21
Table 2.7.1	Destination of 1996 School Leavers in Further Education and Training in July, 1997.	28
Table 2.8.1	Courses taken by Full-Time and Part-Time Students in New Zealand, 1965, 1970, 1975, 1980, 1985, 1990 and 1995.	31
Table 2.8.2	Enrolments for Degrees in at New Zealand Universities, 1998.	37
Table 2.9.1	Enrolments in Technical Education in New Zealand, 1965 and 1970.	43
Table 2.9.2	Enrolments in International Standard Classification of Education Level Five Polytechnic Programmes in New Zealand, 1985, 1990 and 1995.	44
Table 2.9.3	Full-Time Occupations for the New Zealand Population Aged 40-65+, 1996.	45

Table 3.1.1	Number of Male and Female Workers Employed Full-Time and Part-Time in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.	48
Table 3.3.1	Number of Female-Dominated Occupations and Percentage of Females Employed in them using 60, 70, 80 and 90 Percent Definitions, in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.	54
Table 3.3.2	Number of Male-Dominated Occupations and Percentage of Males Employed in them using 60, 70, 80 and 90 Percent Definitions, in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.	55
Table 3.4.1	Percentage of the EMLF Employed in the Seven Main Occupational Classifications in New Zealand, 1971, 1976, 1981 1986, 1991 and 1996.	58
Table 3.4.2	Percentage of the EFLF Employed in the Seven Main Occupational Classifications in New Zealand, 1971, 1976, 1981 1986, 1991 and 1996.	58
Table 3.4.3	The Highest Male-Dominated Occupations (Based on Percentage Male in Each Occupation) in New Zealand, 1971, 1976 and 1981.	59
Table 3.4.4	The Highest Female-Dominated Occupations (Based on Percentage Female in Each Occupation) in New Zealand, 1971, 1976 and 1981.	59
Table 3.4.5	The Highest Male-Dominated Occupations (Based on Percentage Male in Each Occupation) in New Zealand, 1986, 1991 and 1996.	60
Table 3.4.6	The Highest Female-Dominated Occupations (Based on Percentage Female in Each Occupation) in New Zealand, 1986, 1991 and 1996.	60
Table 3.5.1	The MM, ID and SR* Indices of Horizontal Occupational Segregation in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.	65
Table 3.6.1	Summary of Results for CMD, SMD and $S_t$ Indices for New Zealand Studies, 1956, 1961, 1966, 1971, 1976, 1981 and 1986.	68
Table 3.6.2	The CMD, SMD and $S_t$ Measurement of Vertical Gender Segregation for White-Collar Workers in New Zealand, 1971 1976, 1981, 1986, 1991 and 1996.	69

Table 3.6.3	The CMD, SMD and $S_i$ Measurement of Vertical Gender Segregation for All Workers in New Zealand, 1971, 1976 1981, 1986, 1991 and 1996.	69
Table 3.8.1	Percentage of Female Workers in the 20-24 and 25-29 Age Bracket in New Zealand, 1986, 1991 and 1996.	82
Table 3.8.2	Percentage of Male Workers in the 20-24 and 25-29 Age Bracket in New Zealand, 1986, 1991 and 1996.	82
Table 3.8.3	Average Salary Comparisons for Diploma/Bachelor Graduates in New Zealand, 1991 and 1996.	84
Table 3.8.4	Average Salary Comparisons for Postgraduates in New Zealand, 1991 and 1996.	86
Table 3.8.5	Female/Male Earnings Ratio for Recent Graduates in New Zealand, 1975, 1980, 1985, 1990 and 1993.	87
Table 3.8.6	Female/Male Earnings Ratio for Recent Graduates in New Zealand, 1996 and 1997.	88
Table 4.5.1	Work Fatalities and Injuries in the New Zealand Work Force Financial Year, 1989/90.	113

## LIST OF ABBREVIATIONS

American Association of University Women	AAUW
Crude Measure of Differentiation	CMD
Equal Employment Opportunities	EEO
Employment Contracts Act	ECA
Employment Equity Act	EEA
Equal Pay Act	EPA
Equivalent Male Labour Force	EMLF
Equivalent Female Labour Force	EFLF
Gini Coefficient Index	G
Human Rights Commission Act	HRCOA
Index of Dissimilarity	ID
Marginal Matching Index	MM
National Longitudinal Survey	NLS
not applicable	n.a
not elsewhere classified	n.e.c
Public Service Association	PSA
Scholastic Aptitude Test	SAT
Sex Ratio Index	SR
$S_i$ Ratio	$S_i$
Standardised Measure of Differentiation	SMD
Standardised Sex Ratio Index	SR*
Third International Mathematics and Science Study	TIMSS
Women and Employment Index	WE

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of the Thesis

New Zealand, like most other countries, has introduced legislation to enhance the wage levels of women over the last century. In fact it was New Zealand that took the first, and perhaps largest step, towards women's rights by granting women the right to vote in 1893. Nonetheless, issues such as equal pay were considered equally important and were high on the agenda's of women's groups since the early 1890's. Women's rights advocates such as Kate Sheppard, Jessie Mackay and Christina Henderson highlighted the fact that females were frequently being paid less than males, whilst experiencing harsher working conditions. However, Hyman (1994) claimed that unions were more concerned with protecting the jobs of their male members, and tended to include equal pay for women as a strategy if it meant occupations remained predominantly male. Also, employers wanted the freedom to employ women at a lower wage level (pp. 82-3). In 1914 the New Zealand Public Service Association (PSA) introduced the notion of equal pay for equal work as policy. It was not until 1927 that the Labour party adopted the policy as a platform. Yet, during the Depression, the then Labour government turned their back on earlier support for equal pay and instead favoured the notion of the family wage concept. This led to higher wages for men, regardless of whether men or women had dependents (ibid, pp. 82-3).

Even though the depression severely cut the number of people employed in New Zealand, the number of women that entered the labour force continued to increase. Though, this may have been partly attributable to an added worker effect. However, whilst the Unemployment Act of 1930 made it compulsory for registration with the Labour Department for obtaining government assistance, females and persons aged under 20 were not included in the official figures. Only when the Employment

Promotion Act of 1936 was introduced were females over the age of 20 able to register as unemployed and in effect qualify for assistance by the state to find paid work. Further classification of males' and females' wages was apparent when the women's minimum wage rate was set by the court in 1936 at 47 percent of the males rate (*ibid.*, p. 83).

It was not until the Second World War that the shape of female participation in the work force began to take a more dramatic change due to the exodus of males fighting overseas. Females took up many jobs that had originally been predominantly male occupations. By 1945 this led to female labour force participation rates reaching a new high of 29 percent. Despite the upsurge in female participation in the labour force, the Minimum Wage Act of 1945 set different levels for men and women with the minimum adult rate for at £5/5 a week, whilst only £3/3 for females. Further legislation created barriers to certain occupations, such as the Apprentices Act of 1948 that excluded females, even though exceptions were made for individual persons or trades (Davies and Jackson, 1993, p. 37).

By the early 1950's, female labour force participation expanded dramatically. The set up of the Council for Equal Pay in 1957, and campaigning led by the PSA during the 1950's, equal pay for women in the public sector was introduced in 1960 (Hyman, 1994, pp. 83-4). During this time New Zealand experienced unprecedented economic expansion and full employment which created demand for female labour. Indeed, between 1945 and 1971 the number of females in the labour force almost doubled (Davies and Jackson, 1993, p. 41). The notion of equal pay that had been ushered in for the public sector a decade earlier was also extended to those in the private sector under the introduction of the Equal Pay Act (EPA) in 1972 (Hyman, 1994, p. 84).

Under the EPA, all awards and agreements had to provide equal pay for women by 1977. The EPA's purpose was to end formal differentials in the pay of male and female workers. However, there was low level policing of the EPA based on complaints. Thus the evasion of the Act's conditions became widespread. All forms of discrimination became unlawful when the Human Rights Commission Act (HRCA) was instigated in 1977. Under this Act, it was against the law to discriminate against



an employee on the basis of numerous grounds, including gender (ibid., pp. 84-5). However, until 1991, any complaint that dealt with the issue of equal pay did not come under the auspices of the HRCA but instead under the EPA. Such complaints were assigned to the Secretary of the Labour Department for consideration. The Department of Labour was the only organisation to have access to confidential wage records (ibid., pp. 139-40).

Still, ongoing problems existed in predominantly female occupations. In 1986, the Clerical Workers Union took a case to the Arbitration Court. They sought a ruling that employers should be ordered to negotiate on a claim for equal pay for work of equal value. The case was declined and further pressure was placed on the EPA when the Campaign for Equal Value, Equal Pay was formed from an amalgamation of female-dominated unions and women's organisations. Pressure from various groups, including female parliamentarians and other private and trade union activists, brought about the Employment Equity Act (EEA) in July of 1990. However, the EEA was short-lived. It was repealed in December by the newly elected National government. Further legislative changes by the newly elected National government were also introduced (ibid., pp. 86-7). This involved the Equal Pay Amendment Act in 1991 that also permitted the Human Rights Commission to act upon a complaint of unequal pay. Also in 1991, the Employment Contracts Act (ECA) was introduced (ibid., p. 140).

The ECA was introduced with the main objective to '*promote an efficient labour market*' (Scollay *et al.*, 1994). Emphasis was placed on collective or individual employment contracts between employers and employees, rather a system of negotiations through national awards. Many advocates of women's rights deplored the introduction of the ECA as they viewed it as a system that benefited men yet disadvantaged women. Further, they believed that progress towards the goal of gender equality in terms of earnings had been either too slow or was in fact regressing. They contended that many females were losing gains made in the labour market over recent decades. To rectify this situation, more advantageous policies have been recommended such as affirmative action and comparable worth, thus leading to

considerable debate over which direction the current issue of the gender wage gap is heading.

## **1.2 Objective of the Thesis**

There have been a large number of studies published on the issue of the gender wage gap both in New Zealand and overseas. This highly emotive issue has often produced statistics promoting one side or the other that either do not fully explain the current position or are just plain incorrect. Typically, many studies investigating the issue of the gender wage gap centre on the use of a regression model. These aim to identify and determine the impact of the various components, thus 'explaining' any differences in wages males and females receive. Nevertheless, such analyses are subjective in their approach. Results vary depending on the data selected and the choice of variables and functional forms used. These often provide more questions than answers. This is not to say that such analyses do not bring a greater understanding of the issue at hand. Indeed, we will see various studies that have employed such techniques noted throughout this thesis. However, the techniques reducing the analysis of the study of the gender wage gap down to an individual number, mask a considerable amount of achievement that females may have made in all facets of society. Therefore, the purpose and objective of this thesis is to examine the issue of the gender wage gap within a New Zealand context. Also, this thesis will provide an analysis of possible trends and if the implementation of further policies are required to 'close the gap'. In doing so, this thesis will cover a broad variety of data in analysing the current state of the wage gap in New Zealand

## **1.3 Structure of the Thesis**

The content of this thesis has been organised into four chapters. Chapter 1, as just described, provides a general background of the study, the objective of the thesis, and structure of the thesis. Chapter 2 examines the role of education as a determinant of the gender wage gap. It attempts to address the misconceptions about gender performances that have arisen in recent years. In Chapter 3, we move on to the changing position of males and females in the labour force, along with the issue of parental leave and family responsibilities. Chapter 4 asks two broad questions.

Firstly, what are the theoretical reasons for differences in wages between males and females? Secondly, what further policies, if any, are required to eliminate any differences in wages between the genders? This chapter encompasses findings from Chapters 2 and 3 in its attempt to answer both questions. Lastly, Chapter 5 contains a summary and conclusions of the results found.

## CHAPTER 2

### THE EDUCATION SECTOR AND THE GENDER WAGE GAP

#### 2.1 Introduction

Every individual brings into the labour market a particular set of acquired skills and abilities, alternatively known as human capital. One way in which a person can acquire a certain level of human capital is through formal education. Formal education has become increasingly important by each passing generation and the skills obtained during school make up a larger component of a person's stock of knowledge.

Formal education can commonly be broken up into three sectors; primary education, secondary education and tertiary education. Regarding the gender wage gap, formal education presents an opportunity for any variances in ability between the sexes to begin to emerge. Issues of schooling have risen in importance over the last decade due to findings by some that schools are short-changing females.<sup>1</sup> If differences are found through subjects chosen, results of examinations or even attitudes towards particular subjects and self-esteem, these may contribute towards explaining income differentials that develop between the sexes. Any analysis of the differences in the performance of males and females within formal education is typically conducted during secondary and tertiary education. Both sectors provide an opportunity for students to select their own subjects and any variation involving academic achievement can be determined through qualifications gained. Therefore, this chapter will examine whether there is evidence of secondary and tertiary education contributing towards the gender wage gap.

---

<sup>1</sup> American Association of University Women (1992) 'How Schools Shortchange Girls: A Study of Major Findings on Girls and Education'.

## 2.2 Attendance, Retention and Qualifications by New Zealand Students at Secondary School

Table 2.2.1 shows the census percentage changes of the age/sex cohorts of the New Zealand population for the census years 1966-1996. The table highlights 2 points. Firstly, for the lower age group levels, i.e. those aged 0-44, percentage changes were similar in most cases between the genders right throughout the time period observed. For the age groups of 45+, the differences in percentage change were larger. Secondly, from 1966-1981, there were decreases or only minimal increases in the total number of people in the 0-4 and 5-9 age groups. Beyond 1981, there was a general decrease in the total number within the age groups of 0-24, the increases in the 0-4 age group in the 1986-1991 period and the 5-9 age group in the 1991-1996 period being the main exceptions. Increases and decreases in total numbers within various age groups tend to be very similar between the genders. Also there has been a general decline in the total number of young persons in the country, although the age group of 0-4 from 1986-1991 and 5-9 from 1991-1996 displayed sizeable increases. However, attendance numbers at secondary school give a different picture. Table 2.2.2 displays the attendance numbers for males and females at secondary school between 1965 and 1995.<sup>2</sup> The numbers for years 1 to 4 are quite similar, mainly due to compulsory attendance at school during those years. However, regarding the attendance numbers for fifth year students, during 1965-1970, there were around half as many females in attendance than males. Furthermore, between 1975-1985 this gap closed considerably so that by 1990, more females were in their fifth year than males (Figure 2.2.1). Likewise, a similar pattern has emerged concerning the attendance of students in their sixth year and over (Figure 2.2.2). Therefore, whilst the total number of people within these age groups have decreased from 1981 to 1996 which Table 2.2.1 illustrates, attendance numbers for fifth and sixth year students have increased considerably.

---

<sup>2</sup> In most cases, time series data collated for this thesis only extends back to 1965. Those who completed secondary and tertiary qualifications would now qualify or be placed in senior job positions. Hence, comparisons between the genders currently employed can be made in subsequent chapters.

Table 2.2.1: Percentage Change in Age Group for the Total New Zealand Population, 1966-1996.

Age Group	Gender	1966-1971	1971-1976	1976-1981	1981-1986	1986-1991	1991-1996
0-4	Male	-3.2	-0.05	-14.65	-0.44	10.99	1.66
	Female	-2.5	-0.06	-14.71	-1.27	11.92	-0.37
5-9	Male	-3.47	0.05	-6.94	-12.11	-0.65	14.71
	Female	-3.34	0.07	-6.98	-12.14	-1.29	14.66
10-14	Male	13.03	6.21	-4.73	-4.34	-12.38	4.14
	Female	13.59	5.95	-4.29	-4.25	-12.39	2.72
15-19	Male	6.22	15.19	2.70	-2.26	-4.72	-7.95
	Female	6.36	15.45	2.06	-1.44	-4.17	-7.51
20-24	Male	22.64	10.21	5.87	4.49	-3.83	-1.40
	Female	36.90	10.75	4.70	6.29	-2.08	0.6
25-29	Male	11.42	32.81	-4.07	12.34	1.67	-1.09
	Female	12.60	33.21	-1.70	12.54	5.02	0.82
30-34	Male	10.00	19.80	19.35	2.83	10.57	6.46
	Female	13.23	19.56	21.34	4.95	12.35	8.95
35-39	Male	-9.32	16.52	8.14	25.15	2.18	14.27
	Female	-6.06	17.78	10.05	26.13	4.26	16.84
40-44	Male	2.29	-6.43	10.38	12.97	23.71	6.00
	Female	-0.04	-4.73	13.11	13.88	25.01	8.97
45-49	Male	11.91	4.06	-9.76	11.34	12.64	28.54
	Female	6.76	0.29	-7.23	14.69	12.95	29.76
50-54	Male	0.53	13.05	2.47	-6.95	9.19	17.32
	Female	3.51	8.20	-1.77	-4.73	12.47	17.03
55-59	Male	6.23	1.97	11.65	4.19	-8.21	13.91
	Female	10.95	5.56	6.03	0.17	-6.02	16.82
60-64	Male	13.09	9.58	0.15	14.10	4.27	-3.81
	Female	16.54	13.8	3.44	7.00	-0.84	-2.75
65-69	Male	17.09	16.64	7.11	1.61	14.84	8.48
	Female	11.53	18.22	9.3	3.57	7.24	1.80
70-74	Male	16.19	18.85	16.01	9.89	3.33	19.57
	Female	9.31	12.92	17.80	10.94	4.21	10.76
75-79	Male	-7.2	19.03	19.45	17.68	12.76	8.30
	Female	4.34	10.98	14.26	17.99	12.78	8.07
80+	Male	-2.53	-3.22	11.25	25.90	20.96	22.25
	Female	13.28	10.98	15.87	18.82	19.73	19.74

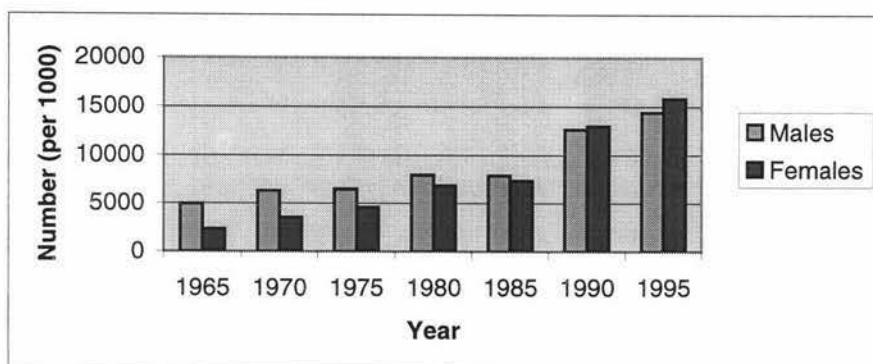
Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1966-1996.

Table 2.2.2: Numbers of Pupils Attending New Zealand Secondary Schools, 1965-1995.

Year	Gender	1965	1970	1975	1980	1985	1990	1995
1st Year	Males	26063	28903	33974	31278	32498	27704	27391
	Females	25003	27718	32735	29951	31488	26352	25971
2nd Year	Males	23476	27052	31400	30032	30953	27247	27074
	Females	22528	26013	30647	28957	30568	25857	26012
3rd Year	Males	16961	20761	24879	26609	26761	26386	27136
	Females	16143	20605	24622	26333	26954	25913	27183
4th Year	Males	10510	13164	14647	18113	17004	21319	21349
	Females	9038	11892	15260	19289	18534	22182	23297
5th Year	Males	4948	6289	6490	7930	7866	12628	14350
	Females	2338	3540	4573	6837	7343	12954	15790
6th Year	Males	542	667	389	582	565	860	1009
	Females	83	139	138	435	436	754	1081

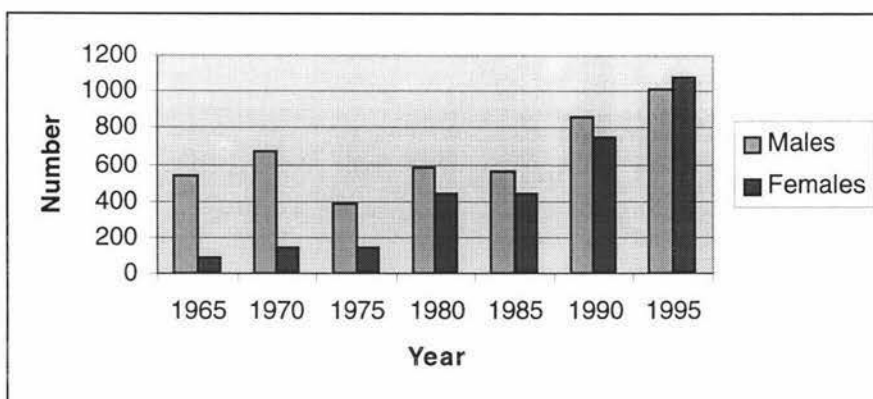
Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1995.

Figure 2.2.1: Attendance of 5<sup>th</sup> Year Students at New Zealand Secondary Schools, 1965-1995.



Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1995.

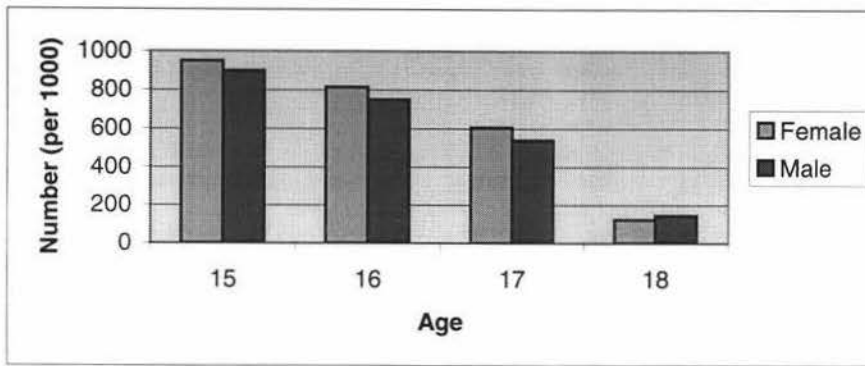
Figure 2.2.2: Attendance of 6<sup>th</sup> Year and Over Students at New Zealand Secondary Schools, 1965-1995.



Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1995.

Comparing more recent data using participation rates, Figure 2.2.3 shows that during 1997, females aged between 15-17 were more likely to stay at school than boys of the same age. At age 18, the reverse was true with female participation rates at secondary school slightly lower than males. Relating these findings to retention rates, the last 12 years have shown a consistent increase in the number of students furthering their secondary education.

Figure 2.2.3: School Participation Rates by Age and Sex in New Zealand, 1997.

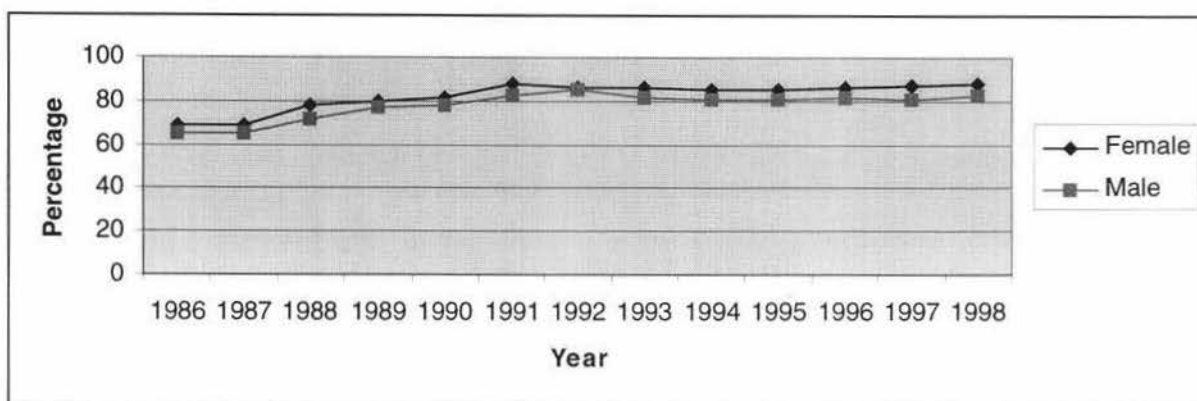


Source: Statistics New Zealand, 1999.

The largest increase in retention rates occurred during the second half of the 1980's. Numbers of females staying at school to the age of 16 had increased from 69.3 percent in 1986 to 88.6 percent in 1998 (Figure 2.2.4). Similarly, retention rates up to the age of 17 almost doubled from 32.8 percent in 1986 to 65.2 percent in 1998 (Figure 2.2.5). Yet, as illustrated by Figure 2.2.3 which shows lower participation rates for 18 year old girls, only 15.2 percent of females stayed at school through to the age of 18 compared with 17 percent of males in 1998 (Figure 2.2.6). Statistics New Zealand (1998) noted that raising the leaving age to 16 in 1993 did little to change the retention rates for students' (p. 58). Furthermore, any causes of fluctuations in retention rates have not been easily explained. One reason could be the number of exemptions for leaving school early that has increased significantly over recent years. This may be influenced by tertiary institutions such as polytechnics competing for secondary school students. Alternatively, the increasing costs of higher education may mean the incentive to gain higher qualifications to further education at a tertiary level have declined, thus causing students to leave secondary school at a younger age. However, those effects may be mitigated by the increasing need for qualifications when attempting to enter the work force.

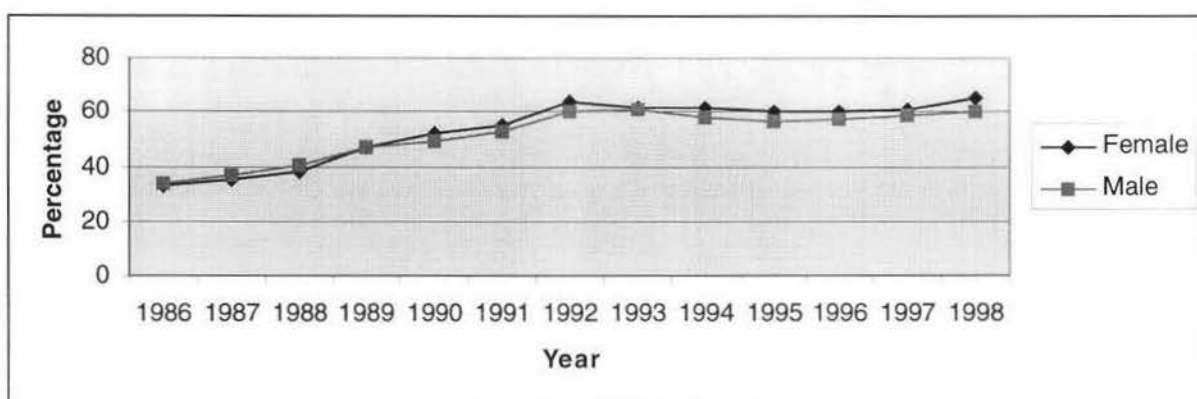


Figure 2.2.4: Retention Rates for 14-16 Year Olds in New Zealand, 1986-1998.



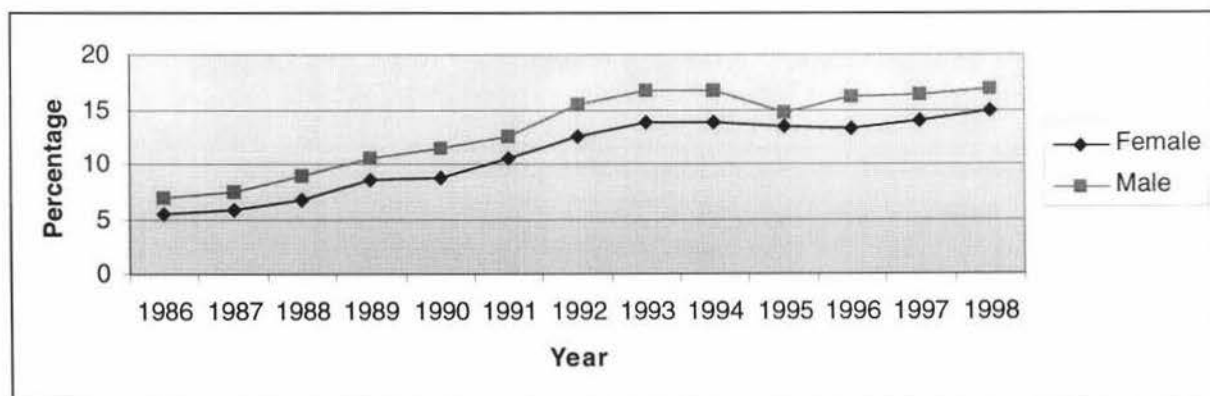
Source: Statistics New Zealand, 1999.

Figure 2.2.5: Retention Rates for 14-17 Year Olds in New Zealand, 1986-1998



Source: Statistics New Zealand, 1999.

Figure 2.2.6: Retention Rates for 14-18 Year Olds in New Zealand, 1986-1998.



Source: Statistics New Zealand, 1999.

Nevertheless, findings of data involving highest attainment of school leavers by gender provide interesting comparisons. Large increases were observed in the late 1980's, and early 1990's, with slower changes since then. Table 2.2.3 shows the percentage of the highest attainment of school leavers by gender for 1987, 1993 and

1997. Those with no qualifications dropped between 1987-1993 but increased slightly by 1997, with males having the highest numbers for each year. When considering students with school certificate as their highest qualification, females had a higher percentage in 1987, but this has reversed with a growing gap between the genders (17.7 percent for males in 1997 compared to 14.9 percent for females). Sixth form certificate has experienced a more consistent trend whereby females have a higher percentage throughout the three years observed. Significantly, the gap between males and females having a seventh form qualification as their highest qualification has increased from a gap favouring males of only 0.4 percent in 1987 to a gap favouring females of 6.8 percent in 1997. Indeed, this gap is the largest of all comparisons within the table.

Table 2.2.3: Highest Attainment of School Leavers by Gender, 1987-1997.

Type of Qualification	1987		1993		1997	
	Male%	Female%	Male%	Female%	Male%	Female%
Seventh Form Qualification <sup>1</sup>	24.8	24.4	35.5	39.7	38.8	45.6
Sixth Form Certificate <sup>2</sup>	25.3	29.5	27.4	28.8	23.7	24.2
School Certificate <sup>2</sup>	25.7	26.1	19.7	17.2	17.7	14.9
No Qualification	24.2	20	17.4	14.4	19.8	15.3

<sup>1</sup> Includes University Bursaries/Scholarship, Entrance Qualification or Higher School Certificate.

<sup>2</sup> One or more subjects irrespective of grade awarded.

Source: Adapted from Table 47, Ministry of Education, 1997.

Table 2.2.4: Percentage of Sitting Students Awarded Higher Grades in New Zealand, 1997.

Qualification	Male (%)	Female (%)
School Certificate Papers Graded A or B	26.6	32
Sixth Form Certificate Papers Graded 1, 2, or 3	18.5	23
Bursaries/Scholarship Papers Graded S, A, or B	40	42

Source: Adapted from Table 43, Ministry of Education, 1997.

Relating this to participation and retention rates, it was previously mentioned that a higher number of males stayed at school through to the age of 18; yet females had a greater success in leaving school with a higher qualification. This could be due to two reasons. Firstly, males may be staying at school until 18 but may only be completing a lesser qualification due to prior failure in subjects in previous years, or deciding to study various qualification levels. Hence, more females than males in their last year are sitting their seventh form qualification. Secondly, it could be due to females simply having a higher pass rate than males when attempting their seventh form

qualification. However, as far as university bursaries/entrance scholarship papers graded S, A, or B are concerned, in 1997, Table 2.2.4 shows that passing rates of males and females were very similar with 40 percent for males compared to 42 percent of female. Therefore, it would seem that females in their last year of secondary school are more inclined to sit a seventh form qualification, whilst males tend to study at a range of levels.

There has been some study whether there is a difference in the choice of subjects taken by students in single-sex schools as opposed to co-educational schools. Horsfield (1988) examined data involving both co-educational and single-sex schools enrolments in non-traditional subjects during 1985. The author found that overall, differences were minimal. The author found that females were more inclined to take science subjects and economics in single sex rather than co-educational schools. In contrast, female students attending co-educational schools were more inclined to take technical subjects, applied mathematics and accountancy (p. 161). The Department of Education (1986) outlined two reasons for any discrepancies in enrolment numbers. Firstly, single-sex schools may lack suitable facilities and resources to provide adequate teaching of particular subjects, such as woodwork and metalwork. Secondly, pupils from single-sex schools tend to come from more affluent backgrounds whilst students from co-educational schools come from a wider range of economic situations (p. 58). Hence, we may find that more pupils are enrolled in manual subjects at co-educational schools, whilst single-sex enrolments could focus more on academic topics.

Overall, the structure of gender participation during the senior years at secondary schools has changed considerably over the last 30 years. There has been a considerable improvement in the number of females remaining at secondary school in the higher years from 1965-1980. From 1980-1995 higher year numbers have increased for both genders. Data over the last 15 years show that females now lead males in attendance, retention and the top qualifications. More importantly, Table 2.2.2 showed that during 1965, and to a similar extent in 1970, female attendance at the highest level at secondary school was well below that of males. If there is

increasing female participation over the last two decades, it is important to address what subjects females are entering into.

### **2.3 Subjects of Study**

Section 2.2 showed the overall numbers of males and females that attended and attained various levels of qualifications at secondary school. There are a variety of subjects in which students can enrol to attain such qualifications. The differences in subjects students enter are more pronounced at a fifth, sixth and seventh form level as students are given the opportunity of choosing from a wide range of subjects.

Table 2.2.1 shows that from 1986 onwards, there was a decline in the number in the 15-19 age group. However, Tables 2.3.1 to 2.3.3 show there was an increase in enrolments for many subjects from 1985-1990. There has certainly been an emphasis on the requirement of students to gain higher levels of qualifications in recent years. This impacted on students by increasing the duration of school attendance. This may be one reason for the increased number of students in most subjects. Nevertheless, some subjects have experienced a decline in numbers. There have been some large falls for the fifth form level. From 1965-1990, the sciences of biology, chemistry and physics had all decreased in attendance. French, geography, history and woodwork also experienced a decline in attendance. Again, French and music attendance dropped considerably during the sixth form. Music was the only subject to suffer a decrease in attendance at the seventh form level from 1965-1990. The main areas of growth at the fifth form level have been accountancy; art; English; horticulture; mathematics; science and technology, and typewriting. At the sixth form level it has been accountancy; agriculture/horticulture; art; economics; English; home economics; mathematics; physics, and typewriting. For the seventh form level all subjects other than music; French, and German showed large increases in attendance numbers.

Table 2.3.1: Subjects Taken by All New Zealand Secondary School Students in Form Five at 1 July, 1965, 1970, 1975, 1980, 1985 and 1990.

Subject	Gender	1965	1970	1975	1980	1985	1990
Accountancy	Males	n.a	n.a	33	75	5176	6053
	Females	n.a	n.a	15	93	5013	5904
Agriculture/ Horticulture	Males	656	338	484	575	842	790
	Females	3	3	60	89	213	204
Art <sup>1</sup>	Males	1058	1720	4406	4754	3975	4964
	Females	1917	2049	5392	5012	3936	5490
Biology	Males	3444	3140	3994	3686	2623	1555
	Females	7125	9031	10514	7916	4673	1981
Chemistry	Males	2509	2073	1634	1266	1137	984
	Females	756	659	337	364	389	268
Economics <sup>2</sup>	Males	n.a	n.a	60	6555	7274	7119
	Females	n.a	n.a	34	6334	7710	6211
English	Males	18154	20714	28129	31149	30007	30653
	Females	16357	19735	27842	30741	30097	29525
French	Males	3658	3516	2602	1523	1277	948
	Females	5916	6202	5469	3798	3320	2870
Geography	Males	11330	12684	16088	14902	12318	10715
	Females	12968	15517	20481	15895	12804	10201
German	Males	124	231	336	447	436	372
	Females	145	404	761	867	1008	1019
Technical Drawing <sup>3</sup>	Males	6492	8792	12305	12575	10335	8304
	Females	1625	1819	977	607	1042	1327
History	Males	5920	5434	6228	5701	4204	4505
	Females	6794	7314	8889	7340	5412	5957
Home Economics	Males	n/a	21	212	758	1398	2027
	Females	2108	2042	3510	5438	6106	5681
Horticulture	Males	213	73	n.a	116	2361	2411
	Females	70	11	n.a	55	1494	1181
Human/Social Biology	Males	58	59	88	506	680	759
	Females	1130	500	626	1252	1911	1665
Mathematics	Males	14228	17660	25648	28085	29188	28917
	Females	6455	9578	17839	25133	28473	27536
Music <sup>4</sup>	Males	15753	13218	7109	2545	1125	1416
	Females	5571	13938	8566	3291	1255	1843
Physics	Males	2559	2181	1881	2182	1808	1820
	Females	234	306	178	350	194	318
Science and Technology	Males	10193	13484	20092	22469	21174	21665
	Females	6327	9272	13919	16964	19275	19609
Typewriting	Males	65	62	163	307	460	700
	Females	1583	4459	8797	13312	12912	11157
Woodwork	Males	2987	3299	5298	5536	4623	1868
	Females	0	11	62	102	171	132
Totals	Males	99401	108699	136790	145712	142421	138545
	Females	77084	102850	134268	144953	147408	140079

<sup>1</sup> Encompasses all Art subjects (Art, Art (Core), Art and Craft, Art Practical, Fine Art Preliminary and History of Art).

<sup>2</sup> Encompasses Economics and Economic Studies.

<sup>3</sup> Encompasses Graphics.

<sup>4</sup> Encompasses all music subjects (Music (Core), Music (Full), Music (General), and Music (Special)).

Sources: Ministry of Education, *Education Statistics of New Zealand*, 1965-1990.

Table 2.3.2: Subjects Taken by All New Zealand Secondary School Students in Form Six at 1 July, 1965, 1970, 1975, 1980, 1985 and 1990.

Subject	Gender	1965	1970	1975	1980	1985	1990
Accountancy	Males	212	304	3150	3325	4223	4714
	Females	24	193	2436	3422	4555	4820
Agriculture/Horticulture	Males	11	12	28	55	114	512
	Females	0	0	11	10	42	189
Art <sup>1</sup>	Males	183	742	1456	1580	1545	2794
	Females	379	764	2723	3547	2991	4020
Biology	Males	3167	5104	8009	7987	6749	5369
	Females	3505	6070	10785	12546	11036	8639
Chemistry	Males	3559	5000	5523	6005	5547	4872
	Females	1157	2084	2938	4371	4966	4291
Economics	Males	1	34	295	4519	5348	4687
	Females	0	15	152	4715	5604	3968
English	Males	6527	10161	13705	16288	16206	20121
	Females	4839	8276	13737	17322	17740	21228
French	Males	1049	908	628	476	448	337
	Females	2258	2678	231	1695	1444	1397
Geography	Males	2938	4788	7032	6562	5603	5414
	Females	3144	5333	8566	8447	6372	4775
German	Males	269	260	193	211	218	207
	Females	624	857	831	744	661	660
Technical Drawing	Males	528	1590	2704	4077	3620	3874
	Females	127	383	121	237	290	732
History	Males	2137	3014	3652	3175	2555	2548
	Females	2682	3937	5700	4970	3315	3303
Home Economics	Males	0	3	16	86	162	658
	Females	30	157	549	755	853	2575
Horticulture	Males	0	0	n.a	14	253	780
	Females	0	0	n.a	20	278	472
Mathematics	Males	5542	7996	11448	14221	13880	17008
	Females	1795	3561	7751	11401	12497	14708
Music <sup>2</sup>	Males	3285	3546	1440	900	478	883
	Females	2607	2864	1903	1335	526	1086
Physics	Males	3366	5016	6859	8033	7748	7783
	Females	546	1123	1925	2679	2998	3036
Typewriting	Males	56	68	54	96	68	241
	Females	390	985	1942	3398	3158	4278
Woodwork	Males	39	57	176	154	62	196
	Females	0	7	15	4	2	28
Totals	Males	32869	48603	66368	77764	74827	82998
	Females	24107	39287	62316	81618	79328	84205

Note: Figures for 1965 are without University Entrance.

<sup>1</sup> Encompasses all Art subjects (Art, Art (Core), Art and Craft, Art Practical, Fine Art Preliminary and History of Art).

<sup>2</sup> Encompasses all music subjects (Music (Core), Music (Full), Music (General), and Music (Special)).

Sources: Ministry of Education, *Education Statistics of New Zealand, 1965-1990*.

Table 2.3.3: Subjects Taken by All New Zealand Secondary School Students in Form Seven at 1 July, 1965, 1970, 1975, 1980, 1985 and 1990.

Subject	Gender	1965	1970	1975	1980	1985	1990
Accountancy	Males	216	153	697	951	1556	2733
	Females	22	15	203	455	961	2036
Art <sup>1</sup>	Males	22	119	325	485	533	2130
	Females	38	142	475	1072	1144	4001
Biology	Males	801	1290	2224	2564	2160	3116
	Females	491	1003	1933	2836	2925	4842
Chemistry	Males	1465	1965	2490	2810	2623	3114
	Females	376	641	1050	1599	1976	2392
Economics	Males	22	82	1481	1854	2449	3775
	Females	2	8	621	1300	1745	3552
English	Males	2164	2951	3993	4170	3806	7129
	Females	903	1596	2766	3921	4267	9964
French	Males	366	407	292	202	202	240
	Females	486	743	697	681	601	840
Geography	Males	552	869	1422	1594	1708	3684
	Females	372	761	1327	1775	1642	3827
German	Males	156	125	77	98	92	82
	Females	183	286	288	309	257	358
Technical Drawing	Males	26	21	9	23	61	325
	Females	2	15	4	2	1	110
History	Males	558	761	1089	1171	1248	2492
	Females	423	770	1257	1668	1600	3378
Mathematics <sup>2</sup>	Males	1661	3470	3674	7015	7601	11696
	Females	435	982	1719	3567	4714	8735
Music <sup>3</sup>	Males	1020	819	1903	183	85	198
	Females	415	509	300	242	188	366
Physics	Males	1439	1846	2519	3034	2875	4137
	Females	271	458	770	962	1164	1474
Typewriting	Males	2	10	0	24	n.a	64
	Females	46	51	34	84	n.a	500
Totals	Males	10470	14888	22195	26178	26999	44915
	Females	4465	7980	13444	20473	23185	46375

Note: Figures for 1965 are with University Entrance.

<sup>1</sup> Encompasses all Art subjects (Art, Art (Core), Art and Craft, Art Practical, Fine Art Preliminary and History of Art).

<sup>2</sup> Encompasses all Mathematical subjects (Applied Mathematics, Mathematics and Mathematics with Statistics).

<sup>3</sup> Encompasses all Music subjects (Music (Core), Music (Full), Music (General) and Music (Special)).

Sources: Ministry of Education, *Education Statistics of New Zealand*, 1965-1990.

Looking more specifically at the subjects males and females have entered into, we see that there are some subjects that have continued to be predominantly entered by one gender. Furthermore, others have increasingly experienced similar gender participation. Regarding accountancy and economics, similar numbers were enrolled throughout the years at a fifth form level. At the sixth form level, the gender gap during the 1960's and 1970's was slightly larger, but this has closed in recent years to near parity. By seventh form, especially during the 1960's and 1970's, female

enrolments in accountancy and economics were minimal. Notwithstanding the fact that male enrolments in these subjects were also low, there was a considerable gender difference. So much so that in 1965, 22 females were enrolled in accountancy compared to 216 males, a female/male ratio of around 10 to 1. For the given year, the male/female ratio for economics was also around 10 to 1 with 22 males and 2 females. By 1970, the ratio for accountancy and economics was similar with 153 males and 15 females; and 82 males and 8 females. Both of these produced a ratio of almost 10 to 1.

Females have generally dominated art, although the greatest difference in numbers have consistently been at the sixth form level. Also, females have predominantly entered music but only in recent years. There are clear gender preferences with respect to the various science curricula available. Greater numbers of females than males have been enrolled in biology and human biology between fifth and seventh form; whilst the reverse has occurred for physics. Chemistry has experienced a convergence of females over males, especially with each passing year group. Mathematics has certainly experienced a change in gender numbers during fifth and sixth form. From 1965-1970 there were around half the number of girls than boys taking mathematics, yet the difference has closed significantly from 1975 onwards. Still, at the seventh form level, a gap has persisted between the sexes, although this gap is not as pronounced in later years. There have been very few differences in English enrolment numbers between the genders. The exception being at the seventh form level when English became optional. At this level, this subject was slightly favoured by females. Females dominate languages such as French and German, particularly at the seventh form level. Likewise, history and geography are again slightly preferred by females. Males dominate graphics/technical drawing and woodwork, whilst home economics has consistently remained the domain of females, although there has been a large increase in male participation. In other subjects that are largely fifth and sixth form topics, typing has been clearly the domain of females with agriculture and horticulture predominantly male orientated. However, one has to bear in mind when considering differences over time is that the earlier male domination of particular subjects was probably due to the higher male retention rates from 5<sup>th</sup> to 7<sup>th</sup> form.



These three tables highlight several important factors. Clearly, throughout the senior years of secondary school, there are subjects that have been and continue to be dominated by one gender. For males, subjects such as graphics, manual trades, physics, chemistry and mathematics dominate. Females tend to dominate the arts, music, languages, social studies, English and biology. Yet clear divisions in subjects by gender have been blurred somewhat over the last 15 years. Most subjects have experienced some type of convergence. One such example has been business topics whereby enrolment numbers in accountancy and economics are relatively similar; in direct contrast to numbers enrolled during the 1960's and 1970's. It is interesting to note that throughout 1965-1995, females studied a greater range of subjects than their male counterparts. Female students chose art, music or a foreign language more than males did. Males on the other hand tended to choose more core subjects and electives that involved some type of manual or technological appreciation.

Furthermore, students' perception of particular subjects may play a large part in whether they are dominated by one gender. Weinreich-Haste (1979, 1981) (Colley, 1998) asked 13 and 14 year old students to rate subjects on various scales. Both males and females perceived mathematics and science subjects as the most masculine of all subjects available, whilst cookery and typing the most feminine. They found that there was a strong correlation between masculine subjects and the notion of them being difficult, interesting, useful, complicated, involving thoughts and about-things. Conversely, feminine subjects were seen as being easy, boring, useless, simple, involving feelings and about-people (p. 23).

### **2.3.1 Mathematics and Science Studies**

With reference to subject performances between males and females, recent studies conducted internationally have focussed on gender differences in achievement concerning mathematics and science subjects. In 1994/95 the Third International Mathematics and Science Study (TIMSS), coordinated by the International Association for the Evaluation of Educational Achievement, assessed the knowledge and skills of New Zealand students in mathematics and science. Three age groups were looked at: standards two and three, forms two and three; and forms six and

seven. Standards two and three showed no significant differences overall between boys and girls regarding mathematics. This was also found for forms two and three, though there were differences evident, favouring boys, on many items by form three. By form six and seven, numeracy scores for mathematics had males significantly higher than for females (536 compared with 507). However, this gap was smaller than for most other countries surveyed (Ministry of Education, 1997, pp. 73-4).

The Ministry of Education (1996) found the difference in science achievement between male and females was negligible at the primary school level. Nevertheless, this increased markedly to the detriment of girls by the start of their secondary schooling. A vast proportion of girls, especially those in forms two and three, tended to develop negative views towards science and mathematics subjects. They often disregarded them as less important to their future. The only area in which girls outperformed boys during form three was human biology. Similarly, a literature investigation by Colley (1998) concerning female participation in mathematics and science, found that physical sciences were perceived as complex and abstract. Biology, on the other hand, was not stereotyped as masculine as it dealt with living organisms instead of abstract laws and formulae. Only the latter were associated with masculinity. By forms six and seven, the TIMSS found higher competency scores in science for males than females (543 compared with 515) (Ministry of Education, 1997, p. 75).

Table 2.3.4: Percentage of Year 3 School Certificate Students Gaining A or B Grades in Selected Subjects, 1996.

Subject	Male(%)	Female(%)
English	17.2	32.2
Mathematics	36.8	34.7
Science	30.4	32.5
All Papers	27.5	33.5

*Source:* Adapted from Table 36, Ministry of Education, 1996.

Table 2.3.5: New Zealand University Bursaries/Entrance Scholarship Examinations: Percentage of Papers Graded S, A or B in Selected Subjects, 1997.

Subject	Participation		Attainment	
	Male (%)	Female (%)	Male (%)	Female (%)
Accounting	15.0	13.4	46.5	38.3
Biology	26.7	37.5	40.1	40.9
Chemistry	26.2	20.7	52.3	50.2
Classical Studies	11.0	18.9	37.0	42.3
Economics	24.2	19.5	41.9	36.8
English	45.3	63.1	32.5	44.3
Geography	25.9	27.8	32.0	36.4
Graphics	11.1	3.1	30.6	32.1
History	9.4	14.2	41.6	39.6
Mathematics (Calculus)	39.8	25.9	46.3	48.1
Mathematics (Statistics)	50.4	40.6	44.6	40.6
Photography	5.3	10.0	28.4	35.9
Physical Education	17.0	13.2	19.1	29.9
Physics	32.8	14.7	52.1	55.6
Te Reo Rangatira	1.8	2.9	46.1	42.2

Source: Adapted from Figure 4.9, Statistics New Zealand, 1998.

If a significant difference existed between males and females in the areas of mathematics and science, exam results would show a similar trend. However, this is not the case. Looking at Tables 2.3.4 and 2.3.5, showing higher grades for School Certificate and New Zealand University Bursaries/Entrance Scholarship Examinations respectively, we can see that grades in these subjects were similar. With School Certificate, boys were marginally better than girls in mathematics. Females slightly outperformed males in science. With University Bursaries/Entrance Scholarship Examinations, males were ahead in chemistry and statistics, whilst females did better in biology, calculus and physics.

Gender comparisons of subjects may be seen as an opportunity to highlight the notion of sex differences in intelligence. According to Halpern (1997), *“there are many cognitive areas in which the sexes, on average, differ, and many in which there are no differences ... some of the differences favour females and some favour males”* (p. 1092). What the author found dangerous was the notion of a smarter sex that has often been extracted from data showing grade differences.<sup>3</sup>

<sup>3</sup> Halpern (1997) summed up the conclusions of multiple studies with the fact that *“females, on average, score higher on tasks that require rapid access to and use of ... semantic information in long-term memory, production and comprehension of complex prose ... males, on average, score higher on tasks that require transformations in visual spatial working memory ... and fluid reasoning, especially in abstract mathematical and scientific domains”* (p. 1091).

### 2.3.2 Standardised Tests

Stricker, Rock and Burton (1993) documented that in the U.S., overall results from standardised tests such as the Scholastic Aptitude Test (SAT) differed from actual grades obtained. This may distort what the real abilities of both genders in various subjects were. The authors contended that males achieved higher grades in such tests; yet females, on average, got higher grades. In New Zealand, the Ministry of Education (1997) highlighted the results from the TIMSS for mathematics and science. Males consistently outperformed females in the study over the various age groups, with some of the largest variation during forms six and seven. Nevertheless, Table 2.3.5 clearly shows that for University Bursary/Entrance Examinations, females receive better grades. This is demonstrated by females outperforming males in mathematics with statistics, and achieving more of the higher grade levels than males in three of the five science topics available.

Further to the use of standardised tests, a common finding, as exemplified by M. and D. Sadker (1990), was that males scored higher than females in all subsections of the SAT. This was despite girls starting out ahead of boys in most academic areas. Yet, others have questioned these claims. The NOW Legal Defence and Education Service (1986) noted that the educational testing service admitted the SAT under-predicted the grade females could expect to obtain in college. Smithson (1990) stated that despite *“the repeatedly demonstrated lack of correlation between women’s performance in classwork and their scoring on the Scholastic Aptitude Test, admission boards continue to use SAT scores”* (p. 2). The SAT, like the TIMSS in New Zealand, rated boys further ahead of girls in mathematics during their more senior years at school. Moreover, like the TIMSS, girls got higher grades in mathematics than their test scores predicted, such as those obtained by females in their first year of college (Anonymous, 1999). Clearly, caution has to be taken with various methods of assessment. It may be the case that SAT scores are inaccurate, or that they are correct whilst exam results are inaccurate. Alternatively, both may be inaccurate.

There has also been considerable interest in the objective of eliminating gender differences in performances concerning various subjects. New Zealand's Ministry of Education senior research manager Hans Wagemaker claimed that better qualified teachers who could deliver the curriculum were required to enhance the performance of females (Fowler, 1997, p. 2). Others disagree. Halpern (1997) argued that any problems with female under-achievement in subjects such as mathematics and science were based on their attitude rather than teaching ability. Evidence of this was found when girls began secondary school that they tended to grow negative views towards maths and science subjects, or disregarded it as less important to their future. Hence, the author contended that any curriculum change should center on the idea of convincing females that mathematics and science are important, and that they should make academic and career choices that were math-wise (p. 1098).

Colley (1998) noted that the apparent lack of recruitment of females in matters of science and technology had overshadowed the ineffective recruitment of males to modern languages. This may be important, as communication across national and language boundaries is essential to a global economy. However, the author conceded that such skills might be less essential than those associated with other main professions (pp. 31, 33). Kleinfeld (1997) contended that in the U.S., African-American boys had drastically fallen behind other groups in most academic tests and qualifications. However, there had been relatively little concern expressed by advocates of those who believed girls were the general group who were the most disadvantaged. Overall, there has been little concern expressed about the possible disadvantages for males of the effects of academic gender stereotyping.

## **2.4 Classroom Participation**

Some contemporary writers on the subject of student performance have focussed on the idea of gender differences in classroom participation as a means to explain differences within subjects. Classroom participation has been seen as a way of observing how the genders interact and whether any patterns result. Research conducted over many years by D. and M. Sadker found that within primary and secondary schools, males called out eight times more than female students did. There

was a distinction in reaction by the teacher with boys often being heard whilst girls were corrected for improper behaviour (American Association of University Women (AAUW), 1992, p. 68). The idea of a clear difference in classroom participation between males and females was emphasised by the AAUW as one of the prime reasons for the under-achievement of girls at school. However, further evidence of differences in attention is sparse. Instead, research by others found that gender difference in classroom participation was small and inconsistent, with results often favouring girls over boys. An overview of such studies by Lindow *et al.* (1985) found that teachers did give more attention to males than females. However, this attention was actually negative, being managerial; often disciplinary, in its intent (p. 3).

Furthermore, as Kleinfeld (1998) noted, the whole idea of classroom participation as a viable reason for schools short-changing girls “contains a tangle of murky issues” (p. 19). Kleinfeld identified four areas of classroom participation that seemed questionable. Firstly, would differences in teacher attention influence how students learn? No research has shown the positive correlation between student attention and achievement. Secondly, there are problems in trying to determine the meaning of getting attention in class. Questions asked by teachers can come in many forms and achieve various purposes. A teacher may ask a question to get a student back on task. Thirdly, a comprehensive study of classroom interaction in different classrooms, in different subjects and in different locales has yet to be conducted. To obtain an overall indication of what occurs in various classrooms in particular subjects, researchers would need to tabulate classroom activities over many hours. Lastly, studies are often conducted in classes where females are at a disadvantage (*ibid.*, p. 19). Studies such as those in law where an aggressive style of questioning is encouraged tend to favour males. Classroom interactions in subjects in which females excel, such as foreign languages and English, are rarely investigated.

Also, some classes tend to be dominated by a few students as far as general discussion and interaction in class is concerned. Tobin and Garnett (1987) found that such students, commonly referred to as ‘target’ students, were predominantly male in science classes. Overall though, female ‘target’ students averaged more interactions per class session than male ‘target’ students did over the range of subjects’ available.

Notwithstanding issues such as personalities in particular classes, classroom rules, teaching methods and subject matter, all contributed to the varying complexities of classroom life. Overall, no strong pattern emerges from the notion of classroom participation affecting gender performance. Instead, studies show that some favour males and others favour females.

## **2.5 Issue of Self Esteem**

Another issue highlighted by the AAUW (1992) was that girls had lower self-esteem than boys. Whether there is a connection between confidence and vitality lost during adolescence and what happened to them at school has been difficult to prove. Kleinfeld (1998) conducted a literature search on self-esteem and revealed three points. Firstly, like classroom participation, self-esteem was very difficult to measure as different studies define esteem concepts in different ways (p. 23). Research by the AAUW (1992) used multiple statements of opinion. Yet Kleinfeld (1998) argued that modesty issues might have prevented students from choosing high opinions of themselves.

Secondly, Kleinfeld found that self-esteem differed not only between boys and girls but also between ethnic groups (*ibid.*, p. 23). The one group that tended to be at the bottom of most educational surveys, yet scored the highest level of self-belief and esteem, were African-American adolescents, particularly males. This had been the result of numerous studies (Tashakkori and Thompson, 1991; Wade, Thompson, Tashakkori and Valente, 1989). Significantly, academic achievement and self-concept did not seem to be important with African-Americans. Instead, it was found to do more with issues such as attractiveness, popularity, appearance, physical strength and bravado. Inferences of low female esteem leading to poor academic performance is therefore difficult if groups with the best self-esteem have the worst academic performance. Tashakkori (1992) concluded that two different individuals could have the same level of self-esteem, while their self-beliefs were completely different. Also, competence in one school subject or in a non-academic area might have compensated for self-unfavourable beliefs in another area (p. 486).

Finally, reported self-esteem differences between the genders were mostly small. Some studies did show self esteem in favour of boys. Work by Dukes and Martinez (1994) and Chubb, Fertman and Ross (1997) showed that any deviations could be explained by the tendency of boys to choose extreme response categories on multiple-choice questions. This problem has also been extended to more comprehensive studies such as Schoen *et al.* (1997). When the categories of opinions were aggregated, no significant difference was found. Furthermore, Kleinfeld (1998) noted that it might have had more to do with dissatisfaction of physical appearance than schools eroding females' self-confidence (p. 25). Kleinfeld noted that the AAUW (1992) report that implied that schools were to blame ironically claimed that evaluations of personal appearance correlated strongly with general statements of self-esteem. Other assessments including academic performance, relationships with peers and family, and feelings of importance were less relevant (p. 25).

Significantly, more comprehensive work flatly contradicts the results of the AAUW and similar studies. Lee, Chen and Smerdon (1996) examined a sample of over 9000 students in nearly 400 schools, whilst Harris (1997) explored a Metropolitan Life survey which involved a group of over 1000 teachers and students. Both studies showed that within the school climate, low self-esteem was generally a shared gender problem, and if anything, was less prevalent in girls than boys. Therefore, there are similar difficulties with comparing the genders in issues of self-esteem as there were with classroom participation in association with the academic performance of students.

## **2.6 Secondary School Education - Some Conclusions**

Presently, upon completion of their secondary school education, females are leaving more qualified than their male counterparts. The increased participation of females over recent decades has in turn meant that more girls have enrolled in subjects that were traditionally dominated by males. Also, despite findings such as the TIMSS that girls lag behind boys in science and mathematics, qualifications gained show that overall, females are if anything ahead of males. The notion that schools are short-changing girls in areas of classroom participation and self esteem is strongly refuted



by many other studies. If any particular conclusion is to be drawn from such issues, it is the fact that a change in attitude is perhaps necessary in subjects like mathematics and science so those females can recognise that they are important to their future. Unfortunately, this is not occurring.<sup>4</sup>

Data concerning secondary schools illustrates the fact female students who would now be of the age where they would qualify or be eligible for top employment positions, made up a small percentage of students who would have had the qualifications to further their education at a tertiary level. This concerns those who attended secondary school during the 1960's and early 1970's. Similarly, if corresponding numbers of students were to continue through to tertiary education, then a disparity between the sexes attending tertiary education may also be found. In turn, there would be larger numbers of males in top business and management positions than females. There are larger numbers of males eligible for top business positions, due to their higher qualifications that should be allowed for when considering possible discrimination against females. Therefore, we need to consider the New Zealand tertiary sector.

## **2.7 The Tertiary Sector In New Zealand**

Currently, beyond secondary school, around half of New Zealand school leavers have continued on to further education or training. Table 2.7.1 shows that school leavers are predominantly entering universities (21.8 percent) and polytechnics (17.8 percent). Indeed, the notion of students furthering their education has certainly been apparent from the section examining secondary education where increasing numbers of female students have attained higher secondary qualifications. Yet universities, and to a lesser extent technical institutions, apprenticeship courses and colleges of education, provide the opportunity to ascertain whether females have furthered their personal investment at the highest level.

---

<sup>4</sup> However, Chapter 3 will show that given the recent growth in the service sector which females enter in higher numbers than males, subjects such as mathematics and science may not be highly critical for the careers of many females.

Table 2.7.1: Destination of 1996 School Leavers in Further Education and Training in July, 1997.

Destination	All School Leavers (%)
College of Education	1.2
Polytechnic	17.8
Private Training Establishment	2.1
Training Opportunities Programme	6.7
University	21.8
Wananga	0.2
Total	49.8

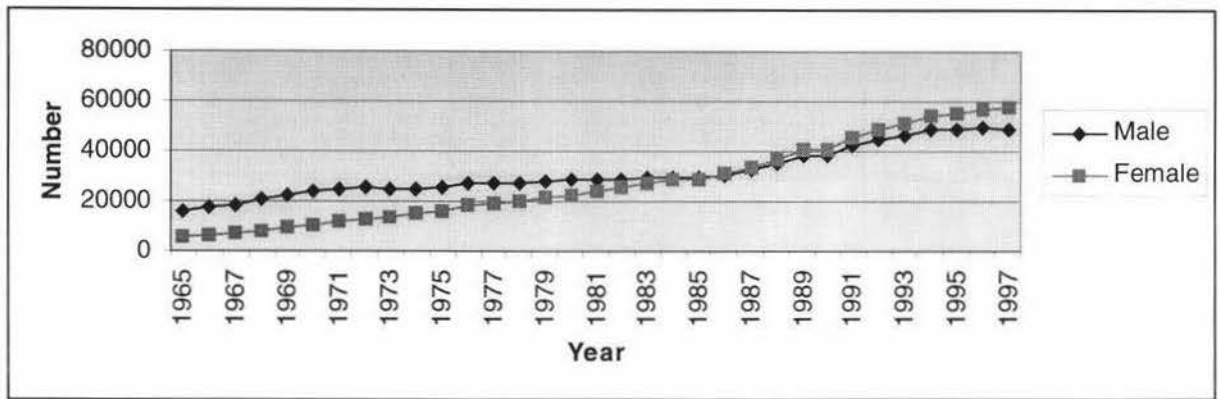
Source: Adapted from Table 48, Ministry of Education, 1997.

## 2.8 Females at New Zealand Universities

Figure 2.8.1 displays the total attendance of all males and females studying at all New Zealand universities from 1965-1997. During the 1960's, male attendance was around double that of female students. However, by mid to late 1970's the gap lessened. Furthermore, by 1986, females overtook males. During the last 5 years this gap has risen so that females now clearly outnumber males at university. Breaking down attendance numbers into full/part time internal students and extramural students' highlights the type of study conditions that females have preferred during the years examined.

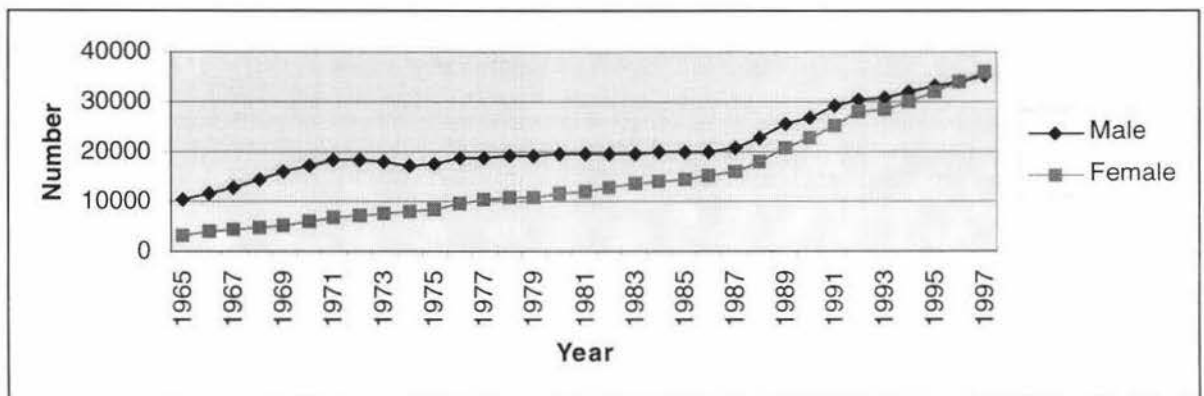
Concerning full-time internal students, Figure 2.8.2 shows that during the 1960's females contributed only around one third of all students in attendance. Yet, during the late 1980's through to the 1990's the gap began to close considerably so that by 1997 female attendance was ahead of males. Figure 2.8.3 illustrates that females now dominate attendance as internal part-time students. Regarding extramural students, Figure 2.8.4 shows that up until 1975 females made steady progress with catching up to male numbers, with females finally overtaking male numbers in 1974. By 1976, extramural enrolments increased dramatically, especially for females. This pattern has continued through to recent years so that now there is a large disparity between the genders concerning extramural attendance. This favours female students.

Figure 2.8.1: Total Number of Students Attending New Zealand Universities By Gender, 1965-1997



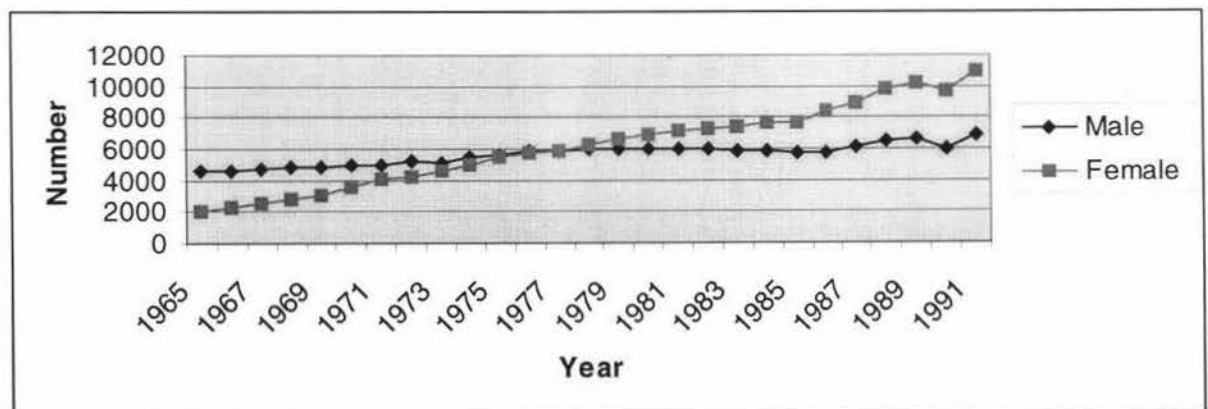
Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1997.

Figure 2.8.2: Internal Full-Time Students Attending New Zealand Universities By Gender, 1965-1997.



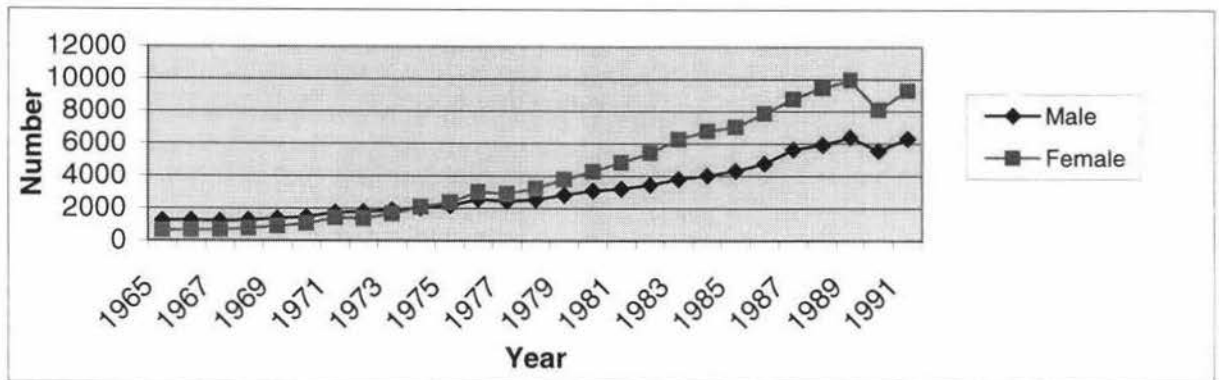
Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1997.

Figure 2.8.3: Internal Part-Time Students Attending New Zealand Universities By Gender, 1965-1991.



Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1991.

Figure 2.8.4: Extramural Students Attending New Zealand Universities By Gender, 1965-1991.



Source: Ministry of Education, *Education Statistics of New Zealand, 1965-1991*.

What is clearly evident about attendance numbers of both genders at university is that females have made great strides over the last 30 years. It is now females who are the dominant sex at these institutions. Nevertheless, we need to reiterate that this change in the gender make-up of university has been a relatively new phenomenon. Attendance figures for females at universities during the 1960's and even through to the early 1970's was very low in comparison to male enrolments.

When considering the numbers of males and females enrolled at various degree levels, female numbers have risen at both under-graduate and post-graduate level. Table 2.8.1 shows that from 1965-1980, males were clearly ahead of females when enrolled for a Bachelors degree, especially in 1965 and 1970 where males outnumbered females by more than two to one. Yet by 1985, female enrolment overtook male enrolment. This trend continued so that by 1995, there were around 6,000 more females at university enrolled in a Bachelors degree than males (45,760 compared with 38,841). Post-graduate qualifications indicate a similar trend. Numbers enrolled in post-graduate Diplomas have generally been equal between the genders in recent years. Enrolment numbers for Bachelors with Honours indicated that it was not until 1995 that females outnumbered males. Similarly, numbers of females enrolled in a Masters degree were considerably below the opposite sex and only outnumbered males by 1995. However, those enrolled for a PhD continue to be mainly males. However, the gap in 1995 was not as pronounced as in 1965, where

females made up just over 7.5 percent of PhD enrolments. By 1995, this percentage had increased considerably so that female PhD students made up around 41.3 percent of PhD enrolments. Liz Gordon, in a press release stated that “*still more men than women go for higher education*” (New Zealand Alliance Party, 1999, p. 1). Looking at figures for 1995 in Table 2.8.1, females made up over 49 percent of those enrolled in postgraduate qualifications. Females have clearly made great strides in not only Bachelor enrolments but in post-graduate degrees as well. It has only been at the higher and lower end of the post-graduate spectrum with the PhD degree and the majority of the time for a post-graduate Diploma, respectively, that females are still slightly below male enrolment numbers.

Table 2.8.1: Courses Taken by Full-Time and Part-Time Students in New Zealand, 1965, 1970, 1975, 1980, 1985, 1990 and 1995.

Year	Gender	PhD	Masters	Bachelors (Honours) <sup>1</sup>	Post Grad Diploma	Bachelors
1965	Male	295	774	342	236	10783
	Female	24	153	78	63	4254
1970	Male	662	1194	756	403	16077
	Female	64	350	241	163	7533
1975	Male	867	1375	474	497	16629
	Female	163	536	317	272	11009
1980	Male	840	1570	665	743	18308
	Female	253	804	452	447	14505
1985	Male	749	1662	689	1041	22013
	Female	319	1091	554	901	22741
1990	Male	990	2286	859	1810	28942
	Female	520	1844	797	1908	32030
1995	Male	1382	3658	1110	3796	38841
	Female	974	3801	1202	3738	45760

<sup>1</sup> Includes both Bachelor (Honours) at the undergraduate and postgraduate level.

Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1995.

Rising participation rates for females at university has not been exclusive to New Zealand. Other countries such as the U.S. (Goldin, 1990) and the United Kingdom (Radford, 1998) have experienced similar increases in female enrolments. Explanations on why females had not previously contributed a larger percentage of enrolment figures at universities have been varied. Some believe discrimination is the explanation.

### 2.8.1 Premarket Discrimination

According to McConnell and Brue (1995), human capital discrimination occurs when individuals have “*less access to productivity-increasing opportunities such as formal schooling or on-the-job training*” (p. 404). Such discrimination is broadly regarded as pre-market discrimination which Albelda *et al.*, (1997) defined as “*unequal treatment or opportunities in nonmarket settings that cause unequal labor market opportunities*” (p. 109).<sup>5</sup> As far as the gender wage gap is concerned, Albelda *et al.* believed that pre-market discrimination could take the form of actual discrimination or it could be a rational response to discrimination. Hence, causality could go either way.

In relation to pre-market discrimination, Goldin (1990) took a differing view. Instead of pre-market discrimination, the author believed that it might be due to reverse causality. Goldin stated that “*because investments in human capital generally occur when individuals are young, adults close to youth often provide their only guide to an uncertain future. Each generation passes its norms and expectations to the next in a manner that often impedes social progress*” (p. 154). Also, the author argued that presently, females are in a better situation to predict their futures and are therefore investing more wisely in their skills. Previous generations of females had severely under-invested in the skills required for continued employment. Goldin cited a study by the National Longitudinal Survey (NLS) in the U.S. during 1968. The study asked a sample of young females between the ages of 14 to 24 whether they would be in the labour force at age 35. Of the white females, 29 percent responded positively, whilst 59 percent of black females answered affirmatively. Nevertheless, by the time all the females surveyed were at least the age of 35, their participation rate exceeded 60 percent if married and 80 percent if they were not. Hence, the perceived participation rate that white females indicated was more in line with what was experienced in 1968 than the actual rate 16 years later (Goldin, 1990, p. 155).

---

<sup>5</sup> Pre-market discrimination is also known as past or indirect discrimination (McConnell and Brue, 1995).

In addition to successive generations experiencing rising expectations about their involvement in the labour force, existing generations have also adapted their expectations over time. Goldin highlighted work by Shaw and Shapiro (1987) which compared the expectations of a group of females born between 1944-1946. The study found that in 1968 only 33 percent of the group believed they would be in the work force at age 35. However, by 1975, expectations had risen to 57 percent. In reality, by 1980 when the group in question had reached the age of 35, 64 percent of females were in the labour force. The difference between perceived and actual participation rates had been 31 percent in 1968 but only 7 percent in 1975 (Goldin, 1990, p. 217). However, we have to mention that this is hardly surprising considering the forecasting was over an extended period of time.

Holdstock (1998) identified two general reasons why there had been certain numbers of female and males students in particular subjects. Firstly, Holdstock emphasised the notion of some subjects being masculine, others being feminine, i.e. a masculine-feminine dimension (p. 60). Radford and Holdstock (1993, 1995a, 1995b) conducted a series of studies in the U.K. involving higher education. They stated to those surveyed that “*some subjects are chosen much more frequently by female students, and some by males, while others attract both equally*” and then asked “*In your opinion, are some subjects more suitable for women and others for men?*” (Holdstock, 1998, p. 62). Their studies found that subjects such as engineering, computer studies, physics, economics and mathematics were ranked as male dominated, whilst education, foreign languages, psychology, sociology and the English language were regarded as female dominated subjects. Other subjects such as business studies, history, medicine, law and biology were perceived as gender neutral subjects. Moreover, Holdstock contended that students who enrolled in a subject that was dominated by the opposite sex tended to show characteristics of that opposing gender, i.e. females entered in engineering tended to express more masculine traits (ibid., p. 60).

Secondly, Radford and Holdstock found that in many current instances “*subjects which increased in student numbers most rapidly were those which were not intellectually too demanding, and provided good employment prospects, not only in*

*level of remuneration but also in the probability of gaining and keeping employment”* (Holdstock, 1998, p. 70). When considering overseas research, would such a statement be indicative of subjects females are entering into in New Zealand? In other words, are females in New Zealand choosing degrees that are not too demanding and have a higher likelihood of obtaining a job? From the aspect of whether a subject is seen as ‘demanding’, similar sentiments were found by Colley (1998) whereby, at a secondary school level, subjects dominated by females were recognised by both genders as being ‘simple’ and ‘easy’.

Choosing a subject that carries a level of remuneration sufficient for their intended lifestyle choice (which may involve remaining single or an expectation of marriage to someone earning more than them) and that has the ability to gain and keep employment means that females must decide on which subject to invest their time and money in. Goldin (1990) asserted above that females are now in the position to recognise the correct amount of investment required when entering the job market. Therefore, have females in New Zealand changed what subjects they have traditionally entered into over the last 30 years to take advantage of the changing employment prospects? Is it now typical that New Zealand females enter into subjects that are both less demanding and have a higher likelihood of obtaining a job?

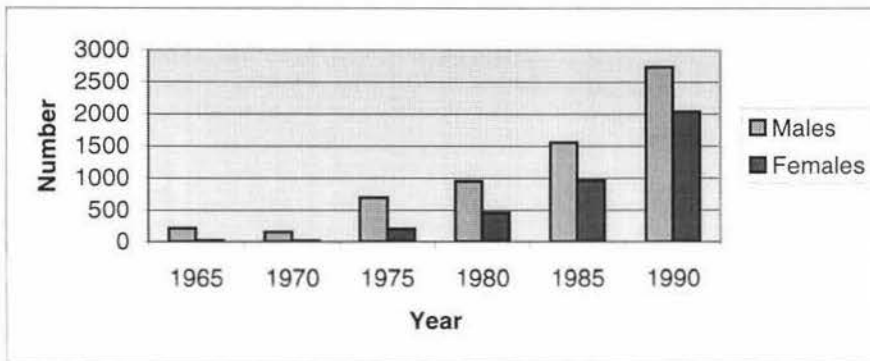
### **2.8.2 Business Subjects and Degrees in New Zealand**

One such academic area that is not overly demanding and stands a good chance of employment prospects is business degrees. Females have made great strides in enrolling for such degrees at an undergraduate level. Females only made up just over 7 percent of all business degree students in 1970 but nearly 46 percent by 1995, indicative of the fact that overall, enrolments for business degrees have become more gender neutral (Ministry of Education, 1971 and 1995). At a more disaggregated level, accounting and economics present the only opportunity to make some type of comparison between the number of female secondary school students who studied economics and accounting and whether similar numbers continued these disciplines at university.



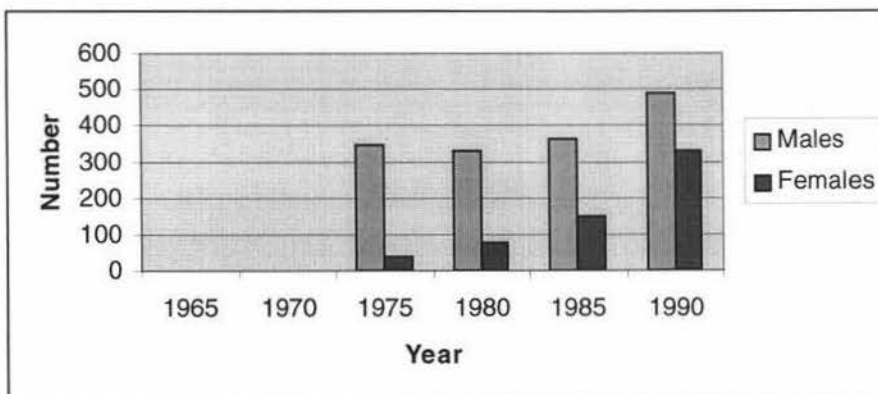
In the case of accounting, we see that by comparing Figure 2.8.5 involving secondary school enrolments at a seventh form level, to Figure 2.8.6 displaying university degrees awarded, there is a similar trend for female students. That is, very low numbers of females compared to males during 1965-1975, with a steady convergence of females from 1980 onwards. Female enrolments in economics at a secondary school level (Figure 2.8.7) show that females have gradually attained parity at secondary school. Degrees obtained in economics have gradually improved for females, while male numbers have been somewhat erratic (Figure 2.8.8). Again, like accounting, female enrolment numbers at secondary school and universities were very low compared to male numbers, but now contribute a sizeable proportion of all enrolments and degrees obtained.

Figure 2.8.5: New Zealand Secondary Students Enrolled in Seventh Form Accounting, 1965, 1970, 1975, 1980, 1985 and 1990.



Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1990.

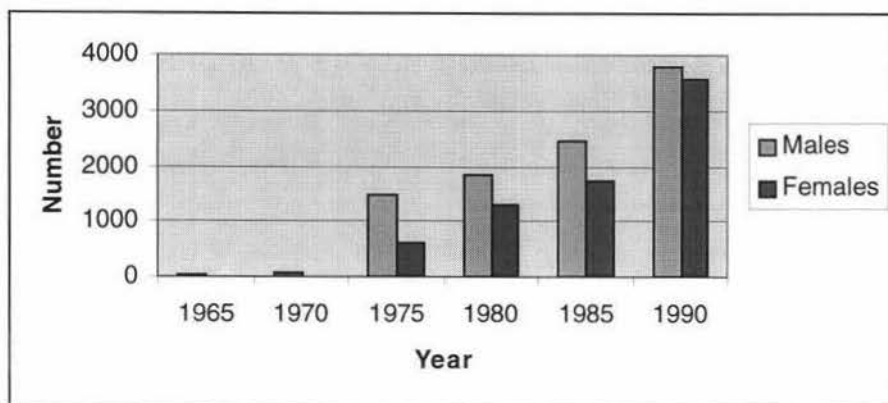
Figure 2.8.6: Bachelor Degrees in Accounting Awarded in New Zealand, 1975, 1980, 1985 and 1990.



Note: Figures for 1965 and 1970 were unavailable.

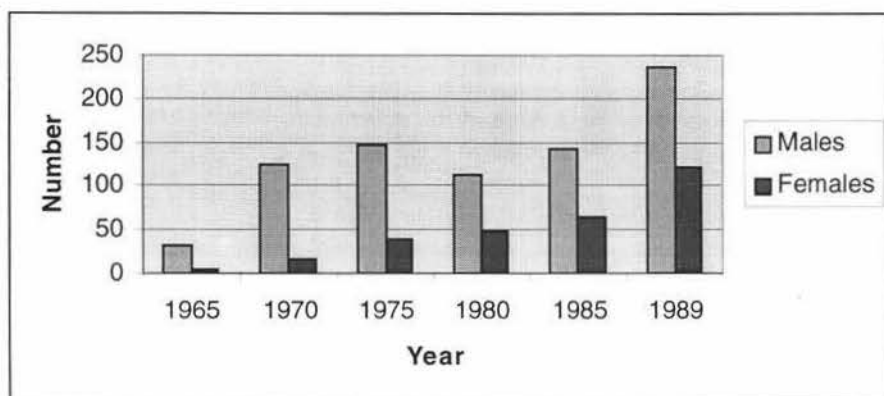
Source: Ministry of Education, *Education Statistics of New Zealand*, 1975-1990.

Figure 2.8.7: New Zealand Secondary School Students Enrolled in Seventh Form Economics, 1965, 1970, 1975, 1980, 1985, 1990.



Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1990.

Figure 2.8.8: Bachelor Degrees in Economics Awarded in New Zealand, 1965, 1970, 1975, 1980, 1985 and 1989.



Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1989.

If what Holdstock (1998) contends is correct, in that females are entering degrees that are indeed not demanding and have good employment prospects, we would expect business degrees to be a dominant course of study. However, this has not exactly been the case. Whilst business degrees have been one of the top three courses taken by females over the 30 years observed, when the various degrees that come under a business degree are aggregated, for 1996 at least, it has not been the most preferred choice. Instead, as Table 2.8.2 illustrates, a humanities degree has been the clearly dominant choice amongst females.

Table 2.8.2: Enrolments for a Bachelor Degree at New Zealand Universities, 1996.

Field of Study	Males	Females
General Programmes	0	0
Literacy	0	0
Education	525	1481
Art, Music and Handicrafts	270	387
Humanities	1241	2514
Religion and Theology	46	20
Social, Behavioural and Communication Skills	175	364
Commercial and Business	2193	2014
Law	302	409
Natural and Applied Sciences	1147	922
Mathematics	0	0
Computing	67	31
Medical and Health	414	1474
Industrial Trades and Crafts	0	0
Engineering	498	113
Architectural and Town Planning	294	183
Agriculture, Horticulture, Forestry and Fishing	141	67
Transport and Communication	27	4
Service Trades	0	0
Mass Communication	30	100
Sport and Recreation	99	111
General Foundation Programmes	0	0

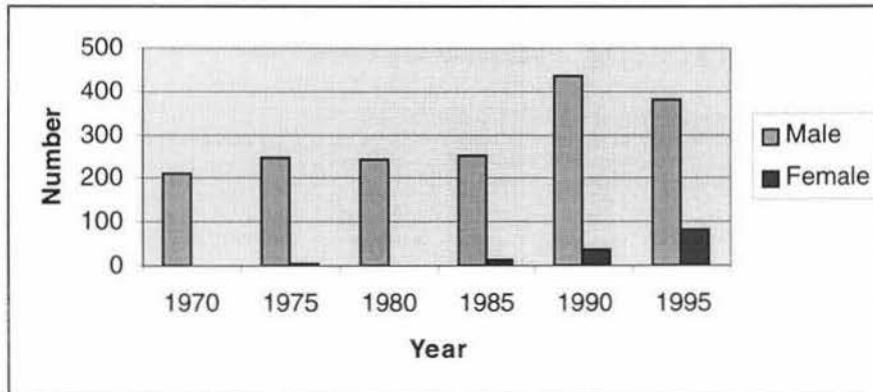
Source: Statistics New Zealand, 1998a.

Whilst a humanities degree encompasses a wide variety of degree courses from which some can be academically difficult, overall, like a business degree, a humanities degree is probably considered less demanding than other courses. More importantly though, unlike a business degree, the chances of obtaining a job tend to be centred around secondary education teaching or some type of archival or librarian position which often does not provide sufficient positions available from year to year. Also, the type of occupation entered that is associated with such a degree often provides mobility and flexible career options along with the opportunity to work part-time which may be beneficial to many females due to outside commitments such as raising a family. Looking at those females who graduated in 1990 with a humanities degree, out of the 647 female graduates, 303 had English as their major and 139 had History (Ministry of Education, 1991). The remaining female graduates predominantly had languages as their major choice that again may limit their access into many job opportunities.

### 2.8.3 Engineering Degrees in New Zealand

One subject that is intellectually demanding and has a high likelihood of employment with respectable pay is engineering. Figure 2.8.9 shows the number of students attaining engineering degrees in New Zealand from 1965-1995. Engineering has been and continues to be a subject heavily dominated by males.

Figure 2.8.9: Bachelor Degrees in Engineering Awarded in New Zealand, 1970, 1975, 1980, 1985, 1990 and 1995.



Source: Ministry of Education, *Education Statistics of New Zealand, 1970-1995*.

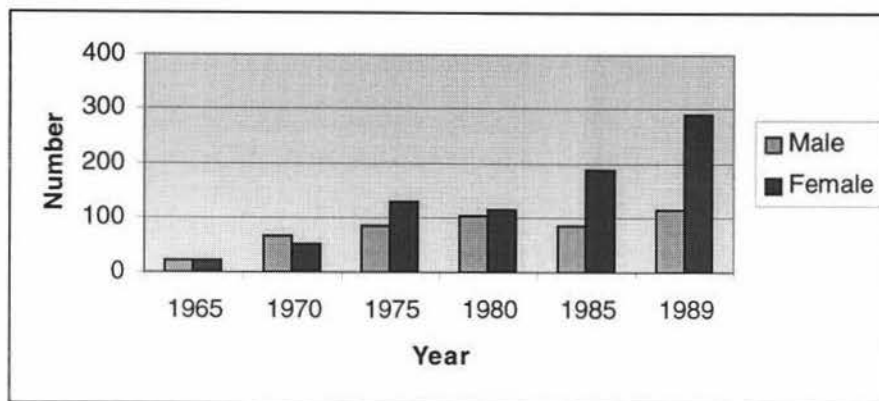
Attempts overseas to encourage more females to enter engineering have had varied success. Holdstock (1998) outlined that in the U.K., the royal charter set up an engineering council in 1981 with an overall purpose to advance education in engineering. Since its inception, the council took great measures to recruit more young people into engineering and specifically to increase the proportion of females. Three schemes were devised involving neighbouring engineers in contact with local schools, an all round degree structure which had a background in all areas and a commission to change the attitudes of young males and females towards engineering as a profession. Still, between 1980-1994, numbers of both sexes that entered into engineering degrees increased only slightly. Indeed, the rate of increase was not far different to the increase before the initiatives began. Therefore, enrolment schemes set up to encourage female participation in certain subjects may not be the optimum solution in all cases. A concerted effort was made to encourage girls into the engineering profession but with minimal success.

Programs in the U.S. provided a slightly differing outcome. Meece and Eccles (Holdstock, 1998) found that between 1976-1986, 29 percent more females earned Bachelors degrees in science and engineering as many programs were instigated. When funding for such programs decreased, so did female enrolments (pp. 79-80). Therefore, attitudes and practices within individual countries may play a large role over whether particular schemes to encourage females into certain subjects are successful. Moreover, we have to ask what is the long-range intention of such schemes? If a recruitment program was introduced that was guaranteed to eliminate dominance by one gender, would we realistically expect equal numbers of both genders enrolled in such programs? Holdstock (1998) believes not. Instead, the author contends that it is possible that each change converges to a limit (p. 80).

#### **2.8.4 Psychology Degrees in New Zealand**

Psychology presents one of the few subjects that have shown a large change in its share of enrolments by both genders. Holdstock points out that as the structure of psychology shifted, so did enrolment numbers. During the 1950's and 1960's, psychology was more concerned with learning theory. Figure 2.8.10 shows that in 1965, there were roughly equal numbers of males and females. Yet, from that point, female numbers in psychology continued to grow whilst male numbers have stagnated somewhat over the last 20-30 years. According to Radford and Holdstock (1993), this change has come about due to a change in the structure of the degree. The authors asked students to rate 12 different areas of knowledge that were taught in a psychology degree in the U.K., according to their importance. Both male and female students regarded personality traits ahead of technical attributes (pp. 73-5). Although there may have previously been an undue emphasis on technical areas, there may now be an undue emphasis on personality traits. If females now dominate psychology degrees and are more inclined to pursue areas of personality traits, two problems arise. Firstly, students would not receive a comprehensive degree structure and secondly, there would be a lack of students entering technical areas of psychology. Again, care has to be taken when deciding on ways to encourage female students which may result in a reverse situation of male students turning away from psychology.

Figure 2.8.10: Bachelor Degrees in Psychology Awarded in New Zealand, 1965, 1970, 1975, 1980, 1985 and 1989.



Source: Ministry of Education, *Education Statistics of New Zealand, 1965-1989*.

In addition to which subjects' females have continued on with and obtained degrees in, one has to ask whether anxiety over the lack of females' in particular subjects has been misplaced. Concerns have been expressed over the lack of female interest in mathematics and physical sciences. However, Kleinfeld (1998) pointed out that the gender gap in subjects such as mathematics and physical science affected the prospects and careers of very few people (p. 18). Taking pure mathematics as an example, in 1995 there were 30 males and 24 females enrolled in a mathematics diploma or degree in New Zealand. At a postgraduate level, there were 103 males and 51 females enrolled in postgraduate mathematics degrees or diplomas. Achieving parity in postgraduate mathematics degrees would affect only around 100 females a year, whilst undergraduate parity would only affect approximately 6 females (Ministry of Education, 1995).

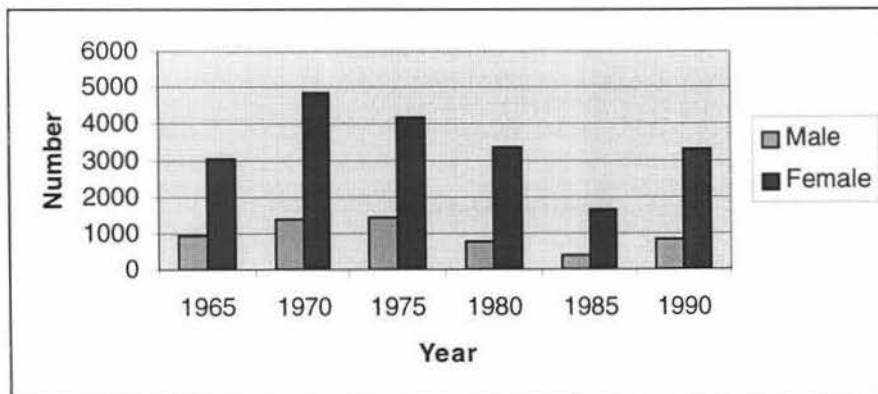
Taking into consideration the claim by Radford and Holdstock (1995b) that students are now entering degrees that are not too demanding and have good employment prospects, two different categories of females seem to be developing when entering university. One group is entering degree programs for the purpose of personal interest, e.g. those students who tend to enter into humanities and arts degrees. A second group is attaining professional degrees so as to move into high status occupations, e.g. those who enter business or law degrees. Therefore, if this were the case, it would be inappropriate to evaluate outcomes between all males and all

females, as they would be misleading due to the motivational difference that exists between the genders.

## 2.9 Females at Teaching and Technical Institutions

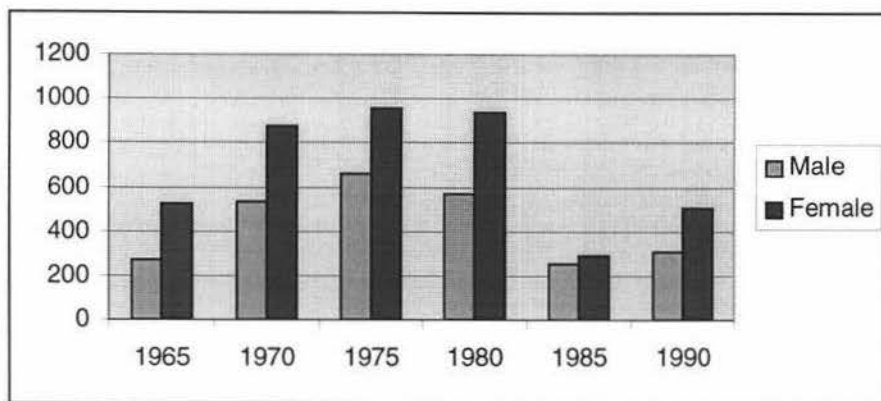
Apart from university education, students wishing to continue their education beyond the secondary level have the choice to enter other tertiary institutions. Figures 2.9.1 and 2.9.2 show males and females enrolled at the nine colleges of education throughout New Zealand in primary and secondary teaching courses respectively. Females have dominated both sectors of teacher training, especially primary training where comparisons between 1965-1995 reveal little change. Similar conclusions can be made about secondary teacher training which has attracted lower numbers of entrants. The lack of male participation has been one of the few instances of male under-achievement that has received attention.

Figure 2.9.1: Students Enrolled in Primary Teacher Training in New Zealand, 1965, 1970, 1975, 1980, 1985 and 1990.



Source: Ministry of Education, *Education Statistics of New Zealand*, 1965-1990.

Figure 2.9.2: Students Enrolled in Secondary Teacher Training in New Zealand, 1965, 1970, 1975, 1980, 1985 and 1990.



Source: Ministry of Education, *Education Statistics of New Zealand, 1965-1990*.

Polytechnic institutions have become a serious rival to universities over recent years in that they have developed a variety of courses available to students. Despite the difficulties in comparing data for technical institutes over the last four decades, some clear patterns have emerged concerning female enrolment into such courses.<sup>6</sup> Technical institutes, or polytechnic institutes as they are now more commonly called, have provided a wide variety of block courses and apprenticeships both in a part-time and full-time capacity to students. More courses have become available for polytechnic students over the last 30 years. Concerning technical education from 1965-1970, Table 2.9.1 shows that females were heavily enrolled in non-vocational studies. So much so that in 1965 and 1970 females enrolled in non-vocational studies made up 78 and 71 percent respectively of total student enrolments in technical education. Also, females made up a very low number of those enrolled in apprenticeship courses. In 1965 there were only 58 females enrolled in such a course compared with 19,079 males. The majority of such apprenticeships involved a manual trade which females may have found or considered inappropriate to enter.

<sup>6</sup> Data concerning technical education courses are not listed consistently, making comparisons difficult. Therefore, for this thesis, data for technical education is analysed over 10-15 year periods.



Table 2.9.1: Enrolments in Technical Education in New Zealand, 1965 and 1970.

Type of Class	Year	Males	Females	Total
Apprentice and other trade	1965	19079	58	19137
	1970	21853	611	22464
Technician	1965	6243	298	6541
	1970	10690	1274	11964
Professional	1965	3771	354	4125
	1970	8909	631	9540
Other Vocational	1965	6488	6693	13181
	1970	5315	10251	15566
Non-vocational	1965	10078	26749	36827
	1970	10694	31467	42161
Total	1965	45659	34152	79811
Total	1970	57461	44234	101695

Source: Ministry of Education, *Education Statistics of New Zealand*, 1965 and 1970.

Apprenticeship trade courses cover a wide variety of job training schemes involving agriculture, engineering, services, and tradecraft and industry. Non-vocational courses, which females dominated, were not subjects that greatly enhance their chance of obtaining a job. Furthering the discussion involving apprenticeship courses, figures for 1975 and 1980 concerning apprenticeship block courses again highlight the fact that males dominated such courses. Of the 21,562 students who took apprenticeship courses in 1975 only 648 were female, and out of those, 616 were enrolled in hairdressing which would generally involve training at some type of college rather than most male apprenticeship courses which would see the worker actually in the work-force. In 1980, there were 1,750 females out of 20,351 persons enrolled in apprenticeship courses. Out of the 1,750 females, 1,287 were enrolled in hairdressing, 101 in footwear manufacturing and 160 in printing (Ministry of Education, 1976 and 1981).

Recent enrolments in polytechnic courses show similar trends to university enrolments discussed previously. Table 2.9.2 shows that females now contribute a far higher percentage of enrolments for the various courses' available. Again, like university data, there are certain programmes that specific genders tend to enter in higher numbers. Notably, engineering courses at polytechnic continue to be entered mainly by males, whilst females make up most of the enrolments in medical and health related programmes.

Table 2.9.2: Enrolments in International Standard Classification of Education Level Five Polytechnic Programmes in New Zealand, 1985, 1990 and 1995.

Field of Study	Gender	1985	1990	1995
Art, Music and Handicrafts	Male	85	195	1010
	Female	119	291	1285
Humanities	Male	4	12	308
	Female	18	25	535
Commercial and Business	Male	2982	6693	9494
	Female	2248	6286	9750
Law	Male	25	80	136
	Female	236	393	816
Medical Science and Health Related	Male	319	513	630
	Female	3332	4189	2879
Maths and Computing Science	Male	109	199	247
	Female	73	107	139
Industrial Trades and Crafts	Male	343	3553	1630
	Female	263	187	448
Engineering	Male	138	1809	4218
	Female	6	322	292
Architectural and Town Planning	Male	0	98	1008
	Female	0	29	372
Agriculture, Horticulture, Forestry and Fishing	Male	118	157	592
	Female	55	57	363
Transport and Communication	Male	20	295	398
	Female	35	14	43
Service Trades	Male	6	80	289
	Female	30	198	521
Sport and Recreation	Male	0	12	291
	Female	0	2	229
Totals		10564	25796	37923

Source: Ministry of Education, *Education Statistics of New Zealand*, 1985-1995.

What is clearly evident from data involving both enrolments and qualifications at a secondary and tertiary sector level is that both education sectors have experienced a strong influx of females during recent years. Between 1965-1975, males were clearly in the majority at the seventh form level. This was also apparent at the university level whereby males were predominantly those who attained undergraduate and postgraduate degrees. The only areas that were female dominated were languages and arts subjects at secondary school and likewise such subjects that came under an arts or humanities degree at university. Data involving polytechnic courses again showed that it has only been in around the last 15 years that females have made serious inroads into male dominated subjects and courses. Bearing this in mind, data concerning those females now aged around 45-60, who are still in the labour force, should show very low numbers in top workplace positions; where those areas of work

required qualifications that were dominated by males. However, as Table 2.9.3 illustrates, this has not really been the case.

Table 2.9.3: Full-Time Occupations for the New Zealand Population Aged 40-65+, 1996.

Occupation	Gender	40-44	45-49	50-54	55-59	60-64	65+
Legislators, Administrators and Managers	Male	18927	19905	14379	9405	3963	1845
	Female	8853	9327	6276	3495	1113	369
Professionals	Male	11970	11670	8346	5754	2637	1173
	Female	11784	11316	7353	4404	1410	237
Technicians and Associate Professionals	Male	11400	10908	7707	5340	2484	828
	Female	7458	6975	4395	2443	762	201

Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1996.

Males have dominated occupations concerning legislators, administrators and managers, and technicians and associate professionals. Numbers for professionals are fairly similar for both genders. However, the younger age groups (i.e. those aged in their 40's) have less of a difference in the 3 occupational categories concerning the genders than the older age groups.

The participation of females in specific occupations further highlights how far females have come. One such occupation is law. Wilson (1999) stated that *"it is no longer credible to state that with time women will hold an equal number of positions in the profession and the judiciary"* (p. 4). She cited the most recent data concerning females in law that whereby in 1998 there were 414 female partners out of 3042 partners in New Zealand. Even though females comprised 29.5 percent of the practising profession, they comprised only 13.6 percent of law firm partners (p. 4). There has been a wide disparity between the number of males and females who have obtained a degree in law. At an undergraduate level, up until mid 1980's at least twice as many males received a Bachelors degree in law than females. More importantly, female students who obtained some type of postgraduate degree in law were extremely low. Again, females have only made inroads during the last 10-15 years. Looking at percentages, females in 1970, 1975 and 1980 made up 8, 21 and 33 percent respectively of the students who attained a degree in law. At a postgraduate level, females in 1970, 1975 and 1980 made up 0, 14 and 39 percent attaining a law degree respectively (Ministry of Education, 1971, 1976 and 1981). Considering that it takes many years to become eligible to become a partner in a legal firm, females are

not as disproportionately placed in such positions as Wilson (1999) argued. Further, we are surmising that those males and females that have attained law degrees over the last three decades have continued to stay in the profession. Yet, females are far more likely than their male counterparts to leave the workplace for certain periods of time and in some instances to withdraw from the workplace altogether, mainly due to family responsibilities.<sup>7</sup> Therefore, whilst the percentages above portray possible numbers of females who would still be in the law profession, actual numbers may be much less. If this is the case, it is increasingly difficult to argue that females are not only being disadvantaged in the legal profession but in most other occupations.

## **2.10 Some Conclusions**

Generally, males and females bring their own set of strengths and weaknesses in various subjects when they enter education. One would not expect, at least in the near future, exact numbers of both genders in the subjects available at either a secondary and tertiary level. This is despite the best of intentions to encourage females into male dominated topics, along with encouraging males into female dominated topics. Much has been made of the fact that females have lagged behind males in numbers attaining qualifications. That can not be said of the females presently enrolling. Both at undergraduate and postgraduate level, females are now ahead of males attaining degrees. This in turn relates to the position of females at work. The common argument is that it takes time before female representation is on par with males' in attaining top positions in various occupations. Statistics concerning education back up this claim. Females who are towards the middle and end of their working career appear not be disadvantaged by their lack of qualifications. Indeed, the issue of a wage gap in occupations between males and females is where we turn to next.

---

<sup>7</sup> See Chapter 3.

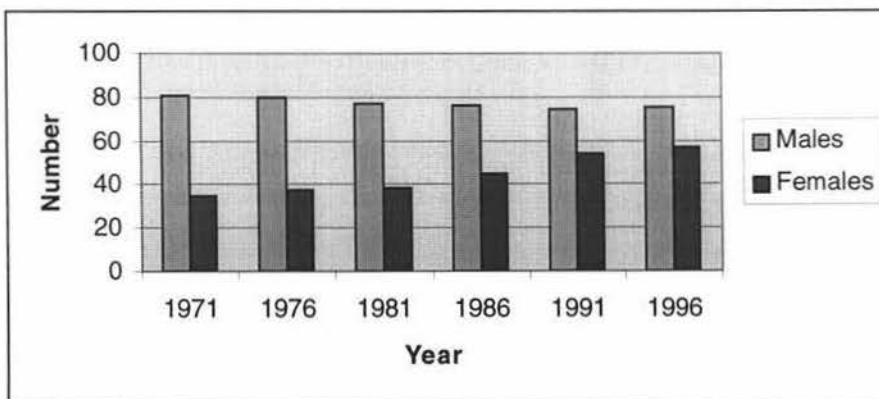
## CHAPTER 3

### OCCUPATIONS AND FAMILY RESPONSIBILITIES AND THE GENDER WAGE GAP

#### 3.1 The Position of Females in the New Zealand Labour Market

Figure 3.1.1 compares the New Zealand male and female labour force participation rates for the census years between 1971-1996. The labour force participation rate of males in New Zealand has steadily declined whilst female participation has gradually increased. There are several reasons for the increased labour force participation rate of females. Bergmann (1986) suggested declining birth rate levels, fewer children, shorter periods of non-participation after birth and increasing numbers of females who do not leave the work-force altogether. Horsfield (1988) highlighted age, family structure, benefit eligibility criteria and the unemployment rate. Brooks (1991) found that the female labour force participation rate was positively related to the proportion of female students at tertiary institutions, and to a lesser extent, the real after tax wage rate. The participation rate was negatively related to the proportion of the population under 15, income from other sources and the rate of unemployment.

Figure 3.1.1: Labour Force Participation Rates for Males and Females in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.



Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1971-1996.

Differentiating between full-time and part-time workers, comparisons over the last three decades are difficult due to changes in the definition of full-time and part-time

employment. Up until 1981, a worker was classified as being in full-time employment if that worker was employed for 20 or more hours per week. A worker was classified as being in part-time employment if that worker was employed for less than 20 hours per week. For the period 1986 to the present, a worker is classified as being in full-time employment if that worker is employed for 30 or more hours per week. Less than 20 hours per week counts as part-time employment. Table 3.1.1 shows the number of males and females working full-time and part-time in New Zealand for 1971, 1976, 1981, 1986, 1991 and 1996.

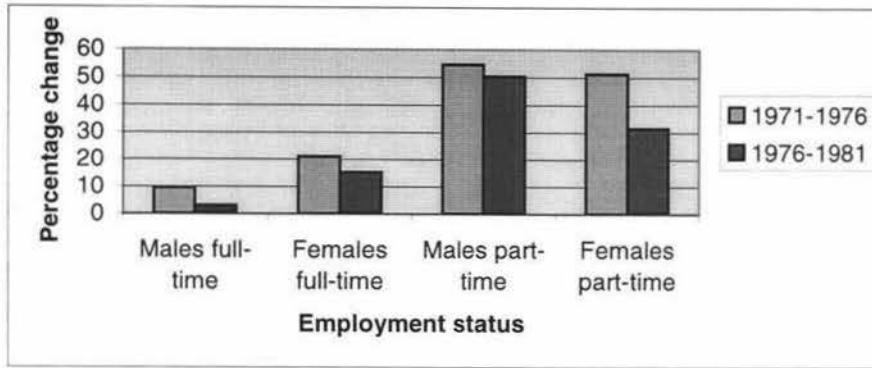
Table 3.1.1: Number of Male and Female Workers Employed Full-Time and Part-Time in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.

Year	Males (Full)	Females (Full)	Males (Part)	Females (Part)
1971	776.2	326.5	8.6	47.8
1976	850.7	395.3	13.3	72.3
1981	876.6	455.8	20.0	95.1
1986	841.3	397.9	49.0	172.2
1991	734.3	417.0	60.8	188.4
1996	778.3	474.5	111.7	266.4

Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1971-1996

From this table we can see that males have dominated full-time work whilst females have dominated part-time work. However, both types of employment have experienced further convergence between the genders. Figure 3.1.2 displays the percentage change in numbers of males and females employed between 1971-1976 and 1976-1981. What is clearly evident during this period is that whilst there was an increase for both genders in the number involved in part-time and full-time employment over the two periods, both genders had been entering the type of employment which the other gender had tended to dominate. There was a larger percentage increase in full-time work for females than males whilst the reverse was evident concerning part-time work.

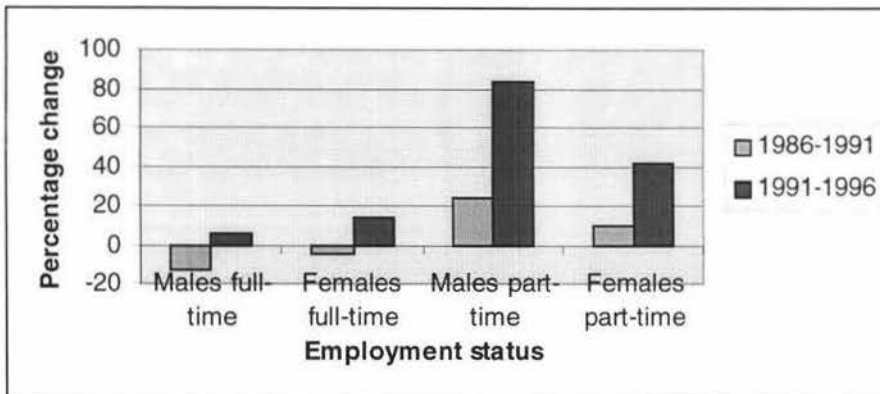
Figure 3.1.2: Percentage Change in Number of Males and Females Employed in New Zealand, 1971-1976, 1976-1981.



Note: Persons working 20 hours or more per week are counted as full-time workers.  
 Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1971-1981.

Looking at the percentage changes for 1986-1991 and 1991-1996 in Figure 3.1.3, we see that these equalising trends have continued.

Figure 3.1.3: Percentage Change in Number of Males and Females Employed in New Zealand, 1986-1991, 1991-1996.



Note: Persons working 30 hours or more per week are counted as full-time workers.  
 Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1986-1996.

### 3.2 Occupations in the New Zealand Labour Market

As workers are involved in either full-time or part-time activities, measurements of males and females in occupations vary. Often, studies involving occupations that have been conducted in New Zealand such as Smith (1981 and 1983), Gwartney-Gibbs (1988), Sloan and Doust (1988) and Van Mourik *et al.* (1989) have only concentrated on full-time workers. However, as indicated above, part-time workers have made up an increasingly larger proportion of those employed in New Zealand

during the last three decades. One way in which to combine both full-time and part-time workers is to use the Equivalent Male Labour Force (EMLF) and the Equivalent Female Labour Force (EFLF). The EMLF consists of the number of males in a particular occupation plus half the number of part-time workers in that occupation. Likewise, the EFLF consists of the number of females in a particular occupation plus half the number of part-time workers in that occupation. Therefore:

$$EMLF_{\text{occupation } i} = MFTW_{\text{occupation } i} + (MPTW_{\text{occupation } i})/2 \quad (1)$$

Where: MFTW = Male Full-Time Workers, and

MPTW = Male Part-Time Workers.

$$EFLF_{\text{occupation } i} = FFTW_{\text{occupation } i} + (FPTW_{\text{occupation } i})/2 \quad (2)$$

Where: FFTW = Female Full-Time Workers, and

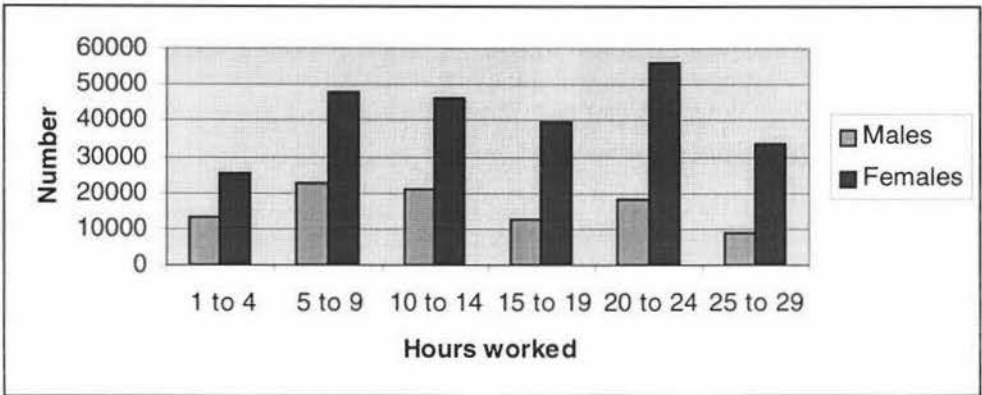
FPTW = Female Part-Time Workers.

As equations (1) and (2) indicate that two part-time workers are equivalent to one full-time worker, this would mean that for a part-time worker not to be exaggerated, full-time workers would have to be working less than 40 hours per week. From a rough calculation of the median amount of hours for part-time and full-time male and female workers in 1996, the median number of hours for part-time male and female workers was between 10-14 and 15-19 hours respectively. For the estimated median number of hours for full-time male and female workers, it was between 45-49 and 40-44 hours respectively (Statistics New Zealand, Census of population and dwellings, 1996). Therefore, male part-time workers would fall well below the estimate of 40 hours per week. As the definition changed for the number of hours employed for part-time workers for 1986 onwards, this meant that an equivalent full-time worker could be employed for less than 60 hours per week, which is substantially higher than the roughly estimated median weekly hours worked. Figure 3.2.1 shows that when part-time workers are broken into employment intervals of five hours, 26.02 percent of the total work-force were females who worked between 20-29 hours per week in 1996. This was a continual decrease from 32.61 percent in 1986 to 30.48 percent in 1991. In comparison, percentages for females were significantly higher than those of male



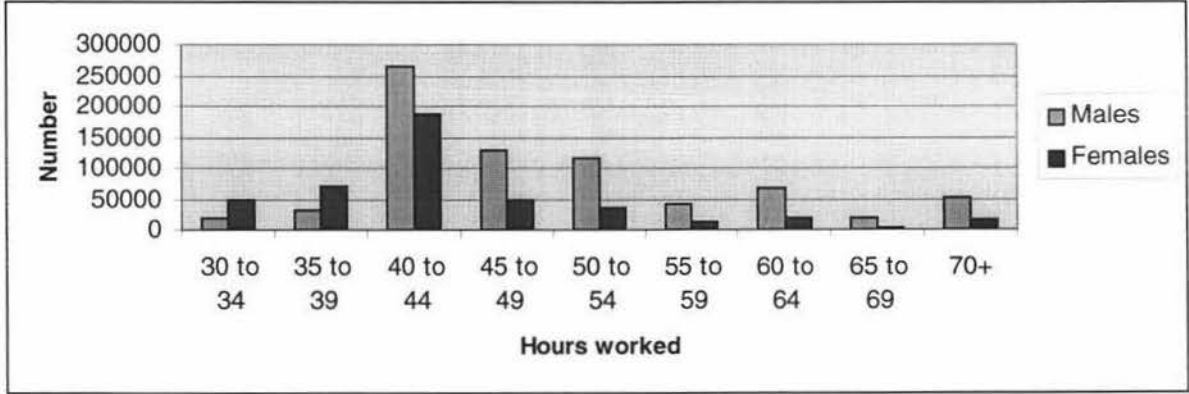
workers, who accounted for only 7.74, 9.33 and 7.81 percent in 1986, 1991 and 1996 respectively (Statistics New Zealand, Census of Population and Dwellings, 1996). Therefore, the problem of two part-time workers equalling one full-time equivalent worker from 1986 onwards is far more disproportionate for females than males, especially since female full-time workers work fewer hours than male full-time workers which is clearly evident in Figure 3.2.2. Females are more likely to work 30-39 hours per week than males, whilst males are more likely to work 40+ hours per week than females. However, it is felt that this shortcoming is negated by the fact that both part and full-time workers can be analysed using one data set.

Figure 3.2.1: Breakdown of New Zealand Part-time Workers by Hours Employed Per Week, 1996.



Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1996.

Figure 3.2.2: Breakdown of New Zealand Full-Time Workers by Hours Employed per Week, 1996.



Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1996.

Occupational data has been obtained from Statistics New Zealand at a 2-digit level. Data at a 2-digit level comprises 80 occupations, which is still a broad range of occupations for analysis. There are benefits of using data at a more aggregated level.

One such benefit concerns a goal of this thesis to observe the similarities and differences of female participation in various occupations from 1971-1996; and broader occupational listing makes this easier when comparing occupations over this period. This is because the classifications of various occupations change over periods. Furthermore, other studies have used 2 digit occupational data when investigating the various issues of 'male' and 'female' occupations in New Zealand (i.e. Gwartney-Gibbs, 1988, Sloan and Doust, 1988). However, we must bear in mind that aggregation of data at this level may hide some differences that would otherwise be evident in data that was disaggregated further. With the change in definition of part-time work, analysis is done for two distinct periods, 1971-81 for the old definition and 1986-96 for the new definition. Increasing data costs for higher occupational classification listing meant 2-digit data was the best option for analysis.<sup>8</sup>

### 3.3 Gender Dominated Occupations in the New Zealand Labour Market

There are various definitions of what are considered as 'male occupations' and 'female occupations'. One of the simpler approaches is to determine which occupations are deemed to be 'male' or 'female' by the percentage of males and females employed in those occupations. If occupations were perfectly integrated, all would represent the same percentage of male and female workers that make up the work force. However, this is rarely the case. Therefore, most studies in New Zealand have concentrated on high levels of occupational segregation.

Smith (1983) classified an occupation to be 'female' if the number of females exceeded 70 percent or more. Gwartney-Gibbs (1988) identified 'female occupations' with 67 percent consisting of female workers. Van Mourik *et al.* (1989) took a slightly different approach whereby they defined an occupation to be 'female' dominated if 60 percent of the workers employed were females and 'male' dominated if 80 percent of the workers employed were males.<sup>9</sup> However, as Melkas and Anker (1998) pointed out, the use of a fixed numeric cut-off point can cause problems when

---

<sup>8</sup> A list of the numbers of EMLF and EFLF employed in occupations at the 2-digit are included in Appendix B.

<sup>9</sup> Table 3.6.1 on page 69 summarises the results of these 3 studies.

observing changes over time. This can occur when one or more occupations are close to the cut-off point, e.g. 59.9 or 60.1 percent. Also, the use of only one numeric cut-off point does not reveal the extent of any changes that may have occurred in the gender make-up of occupations i.e. whether there has been a drop in extremely high gender-segregated occupations. Therefore, whilst aggregation of data at a 2-digit level may obscure differences to a certain extent, 4 definitions for gender dominated occupations have been used for the data set. These definitions are: occupations where 60 percent or more; 70 percent or more; 80 percent or more, and 90 percent or more of workers are female. The same threshold applies to workers in male dominated occupations. This not only partly solves the problem of a cut-off point but it also provides a more detailed analysis of the changing structure of gender dominated positions.

Unlike similar studies that have analysed occupational data (Anker, 1998, Melkas and Anker, 1998), the listing of occupations used for this thesis includes agricultural occupations. Agricultural jobs have often been excluded in previous studies involving overseas data due to the classification of agricultural occupations being inconsistent over time within family-based farms in comparison to non-agricultural occupations. These difficulties are somewhat negated in this thesis by the fact that the classifications involving occupational data in New Zealand have remained stable. Broader classifications used for agricultural occupations have meant that there is less of a difference with gender occupations on the farm when compared with non-agricultural occupations. Also, the fact that the agricultural industry remains highly important for the New Zealand economy is a further reason for inclusion.

Given the increase in the female labour force participation rate in New Zealand over recent decades, Smith (1983) suggested two hypotheses concerning its effect on the occupational distribution of the labour force. Either more females were entering 'male' dominated occupations that would result in a decrease in the level of occupational segregation; or it may be that although more females were entering the labour market, they were only obtaining employment in already female dominated occupations. Thus, this would leave little change in the level of occupational

segregation (p. 39). From the data set used, it seems that it is the former hypothesis that prevailed.

Table 3.3.1: Number of Female-Dominated Occupations and Percentage of Females Employed in Them Using 60, 70, 80 and 90 Percent Definitions, in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.

Definition of female-dominated occupations	1971	1976	1981	1986	1991	1996
No. of female dominated occupations (>60%)	12	15	15	17	16	18
Percentage of female labour force employed in them	48.6%	68.4%	72.6%	68.0%	64.4%	61.7%
No. of female dominated occupations (>70%)	8	10	9	13	10	11
Percentage of female labour force employed in them	33.3%	38.3%	49.5%	55.0%	51.0%	49.1%
No. of female dominated occupations (>80%)	5	7	7	6	5	5
Percentage of female labour force employed in them	23.8%	30.9%	27.8%	20.6%	18.4%	24.4%
No. of female dominated occupations (>90%)	4	3	1	1	1	1
Percentage of female labour force employed in them	15.6%	23.2%	21.3%	19.9%	20.4%	20.9%

Table 3.3.1 presents results for the census years 1971, 1976, 1981, 1986, 1991 and 1996 for female workers in the New Zealand labour force. This table provides two sets of statistics. Both sets of statistics employ the 60, 70, 80 and 90 percent definitions outlined above. Firstly, the percentage of the EFLF that is working in 'female' dominated occupations. Secondly, the number of the 80 occupations that are gender dominated at the specified level. From 1971-1981 the percentage of the EFLF increased markedly at all of the percentage definitions whilst the number of occupations had also increased, with the exception of the 90+ percent level. The percentage of the EFLF at the 60+ percent level increased considerably from 1971-1981. A sizeable increase in the EFLF at the 70+ percent level was also evident from the two periods. Yet, the number of occupations at this level increased only slightly. The number of occupations at the 70+ percent level saw little change from 1976 to 1981, due to the percentage of female workers in laundering, dry-cleaning and pressing falling slightly below 70 percent. During the same period, the percentage of the EFLF rose due to the increased number of female workers classified as clerical (not elsewhere classified (n.e.c)). There were only 4 and 3 occupations that had 90+ percent of female workers in 1971 and 1976 respectively. The collective occupation of stenographers, typists and card-and-tape-punching machine operators was the only

occupation in 1981 that contributed 90+ percent of the female workers, and involved over one-fifth of the total EFLF.

Looking at the census years 1986, 1991 and 1996 for female workers in New Zealand, from 1986 to 1996, as for the first period, there has been only a slight change in the number of occupations at the various percentage levels. Whilst the percentage of the EFLF has dropped slightly at the 60+ and 70+ percent level, at the 80+ and 90+ percent level, percentages increased only moderately. As there were very few 'female occupations' that reached 80+ percent, numbers were also stagnant.

Table 3.3.2 presents results for the census years 1971, 1976 and 1981 for male workers in New Zealand. The table shows that a very high percentage of the EMLF worked in 'male occupations' over the three time periods. Yet, unlike the 'female occupations' during the same period, there was a clear decrease in both the number of occupations at each percentage level and the percentage of workers at each of these occupations. Interestingly, at the 70+, 80+ and 90+ percent levels, the number of 'male occupations' fell by 7 whilst at the 60+ percent level the fall was by 3. The largest drop in the percentage of workers at each 'male occupation' was at the 90+ percent level, decreasing from 52.2 percent in 1971 to 41.7 percent in 1981. Overall, this may be evidence of a decline in the demand for mainly 'male occupations' and therefore, growth in mainly 'female occupations'. Alternatively, this may be evidence of growth in female employment in 'male occupations'.

Table 3.3.2: Number of Male-Dominated Occupations and Percentage of Males Employed in Them Using 60, 70, 80 and 90 Percent Definitions, in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.

Definition of male-dominated occupations	1971	1976	1981	1986	1991	1996
No. of male dominated occupations (>60%)	57	54	54	41	49	49
Percentage of male labour force employed in them	81.6%	81.6%	79.9%	79.2%	76.3%	75.8%
No. of male dominated occupations (>70%)	51	50	44	32	41	38
Percentage of male labour force employed in them	79.0%	80.2%	71.9%	71.2%	66.9%	62.8%
No. of male dominated occupations (>80%)	43	41	36	30	26	25
Percentage of male labour force employed in them	71.6%	73.3%	68.4%	53.6%	41.5%	33.5%
No. of male dominated occupations (>90%)	32	29	25	20	19	15
Percentage of male labour force employed in them	55.2%	47.0%	41.7%	34.7%	30.6%	22.6%

Looking at data for 1986, 1991 and 1996, it is notable that from 1986-1996 the number of occupations at the 80+ and 90+ percent level had dropped by five in each percentage bracket. Also, the number of occupations at the 60+ and 70+ percentage level had increased by eight and six respectively. This directly reflected certain occupations that became more 'feminised', and subsequently contained a lower percentage of male workers. The percentage of workers at each 'male occupation' was still relatively high. However, they had declined at all percentage levels; especially at the 80+ and 90+ percentage levels of 'male' dominated occupations, which dropped by 20.1 and 12.1 percent respectively. Overall, this may indicate that females are moving into the majority of occupational areas, not just those where females have been previously.

In relation to studies of other industrialised countries, Melkas and Anker (1998) found that based on 75 occupations in the three Nordic countries of Norway, Sweden and Finland, 48 percent of female workers were employed in positions where they contributed at least 80 percent of the female labour force during 1990 (p. 47). Despite the study concentrating only on the female non-agricultural labour force whereby figures produced in this chapter includes agricultural positions, Table 3.3.1 shows that 24.4 percent of the New Zealand EFLF were employed in positions where they contributed at least 80 percent of workers. This value was similar to the average value of 22 percent found for female workers in 14 OECD countries (ibid., p. 47).

Overall, in terms of changes in female dominated positions from 1971-1981 and 1986-1996, the period 1971-1981 showed an increase in the proportion of females in female dominated occupations. Between 1986-1996, however, numbers stayed relatively stable. This would indicate that to an extent, increasing numbers of the New Zealand female labour force over the last three decades have been absorbed into existing female dominated occupations. Yet, shifting the focus on 'male' dominated occupations indicated that females were increasingly entering 'male' dominated occupations in large numbers also. As Table 3.3.2 shows, there had been a substantial decrease, particularly between 1986-1996, in the percentage of males working in 'male' dominated occupations. This decrease was also evident between 1971-1981

but between 1986-1996 a large reduction occurred particularly for occupations incorporating 80+ percent of male workers. These falls were significant, especially considering the short-term period of the two 10-year intervals. Therefore, it is important to identify which occupations are experiencing these changes. Also, whether issues such as working conditions, and identifying better job opportunities, are causes for the overall percentage shifts between the genders.

### **3.4 Largest Female and Male Occupations**

Tables 3.4.1 and 3.4.2 display the percentages of the EMLF and EFLF respectively that were employed in the 7 main occupational classifications for 1971, 1976, 1981, 1986, 1991 and 1996. Table 3.4.1 shows percentages of the EMLF for the 6 time periods. During the entire time, the majority of the EMLF was involved in production and related work. This was followed by agricultural and horticultural based workers and professional and technical employees. During 1986, 1991 and 1996 the EMLF were again heavily involved in production occupations, though the percentage share in these occupations dropped from approximately 43.7 percent in 1986 to 36.2 percent in 1996. Agricultural workers and clerical workers were the only other 2 occupations that experienced a decrease in their percentage share. Table 3.4.2 shows that females tended to be more evenly spread throughout the 7 main occupational classifications than males. However, larger classifications of occupations may result in a slightly different outcome. Still, during 1971, 1976 and 1981, around one-third were classed as clerical workers and one-fifth were employed in some type of professional or technical occupation. Concerning the EFLF during 1986, 1991 and 1996, the main occupation of clerical workers experienced a decline from 33.3 percent in 1986 to 28.4 in 1996. The only other main occupational categories that showed a decline in female numbers were agricultural workers and production workers.

Table 3.4.1: Percentage of the EMLF Employed in the Seven Main Occupational Classifications in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.

Males	1971	1976	1981	1986	1991	1996
Professional and Technical	10.5%	12.3%	12.2%	13.2%	15.9%	16.8%
Administrators and managerial workers	3.5%	4.5%	5.0%	7.1%	8.4%	9.9%
Clerical workers	9.0%	8.3%	7.9%	7.7%	7.2%	6.9%
Sales workers	9.9%	9.2%	9.1%	9.0%	10.7%	10.5%
Service workers	5.5%	5.5%	6.1%	6.1%	7.0%	7.2%
Agricultural, animal husbandry, and forestry workers, fishermen, and hunters	14.5%	12.8%	13.7%	13.2%	12.7%	12.5%
Production and related workers, transport equipment operators, and labourers	47.0%	47.3%	46.0%	43.7%	38.0%	36.2%

Table 3.4.2: Percentage of the EFLF Employed in the Seven Main Occupational Classifications in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.

Females	1971	1976	1981	1986	1991	1996
Professional and Technical	17.1%	18.8%	18.7%	18.2%	22.1%	22.9%
Administrators and managerial workers	0.3%	0.7%	0.8%	2.3%	3.4%	4.6%
Clerical workers	32.5%	33.8%	32.8%	33.3%	32.6%	28.4%
Sales workers	11.7%	10.9%	12.4%	11.4%	12.2%	12.3%
Service workers	14.2%	14.0%	13.7%	14.0%	13.9%	15.5%
Agricultural, animal husbandry, and forestry workers, fishermen, and hunters	5.3%	5.7%	6.9%	7.3%	6.6%	6.5%
Production and related workers, transport equipment operators, and labourers	18.9%	16.1%	14.7%	13.4%	9.3%	9.8%

As far as the 2-digit classification of 80 occupations for males and females is concerned, Tables 3.4.3 and 3.4.4 list the ten occupations with the highest percentage of males and females respectively during 1971, 1976 and 1981. These tables also list the occupations that had dropped out of the top ten. What is clearly evident during these periods is that there has been little change in the make-up of the highest percentage of 'male' and 'female' occupations. The 'female occupations' comprised jobs that were similar to studies in other countries, e.g. Melkas and Anker (1998). It is very clear that the top 'female' dominated jobs were associated with: (i) caring, e.g. Housekeeping and related service supervisors; and medical, dental and veterinary workers; (ii) manual and finger dexterity, e.g. Stenographers, typists and card-and-tape-punching machine operators; tailors, dressmakers, sewers and upholsterers; telephone and telegraph operators; and tobacco preparers and tobacco product makers; and (iii) typical household-related work, e.g. house-staff and related housekeeping service workers n.e.c.; hairdressers, barbers and beauticians; cooks, waitresses and bartenders; and launderers, drycleaners and pressers. The majority of the work that is entailed with these occupations involves indoor activities. This is contrary to the



majority of the predominantly 'male' dominated occupations that typically involved outdoor activities. Most 'male' dominated occupations were involved with: (i) labour intensive work, e.g. bricklayers, carpenters and other construction workers; miners, quarrymen and well-drillers; stone-cutters and carvers; forestry workers; painters; fishermen and hunters; plumbers, welders; and sheet-metal and structural metal preparers and erectors; (ii) technical maintenance, e.g. machinery fitters, machine assemblers and precision instrument makers; and stationary engine and related equipment operators n.e.c.; and (iii) supervisory positions, e.g. aircraft and ships officers; transport conductors; farm managers and supervisors; and jurists.

Table 3.4.3: The Highest Male-Dominated Occupations (Based on Percentage Male in Each Occupation) in New Zealand, 1971, 1976 and 1981.

Occupation	1971	1976	1981
Bricklayers, carpenters, and other construction workers	99.9 (1)	99.7 (2)	99.5 (2)
Miners, quarrymen, and well-drillers	99.9 (2)	99.9 (1)	99.5 (1)
Stationary engine and related equipment operators n.e.c.	99.9 (3)	99.6 (3)	99.5 (3)
Aircraft and ships officers	99.9 (4)	99.3 (4)	98.4 (4)
Transport conductors	99.7 (5)	99.1 (5)	94.4 (14)
Stone cutters and carvers	99.2 (6)	95.9 (13)	95.5 (10)
Forestry workers	99.2 (7)	98.3 (6)	96.2 (9)
Farm managers and supervisors	98.8 (8)	96.6 (11)	96.4 (8)
Painters	98.7 (9)	98.2 (7)	97.0 (6)
Fishermen and hunters	98.7 (10)	97.6 (9)	95.3 (11)
Jurists	98.1 (12)	98.0 (8)	90.6 (22)
Plumbers, welders, sheet-metal and structural metal preparers and erectors	96.6 (14)	97.2 (10)	97.8 (5)
Machinery fitters, machine assemblers, and precision instrument makers (except electrical)	97.8 (13)	96.3 (12)	97.0 (7)

Table 3.4.4: The Highest Female-Dominated Occupations (Based on Percentage Female in Each Occupation) in New Zealand, 1971, 1976 and 1981.

Occupation	1971	1976	1981
Stenographers, typists and card-and-tape-punching machine operators	98.5 (1)	98.8 (1)	98.2 (1)
Housekeeping and related service supervisors	92.3 (2)	91.1 (3)	88.2 (3)
Computing machine operators	91.9 (3)	88.4 (4)	83.0 (4)
Housestaff and related housekeeping service workers n.e.c.	91.0 (4)	93.4 (2)	89.1 (2)
Tailors, dressmakers, sewers, and upholsterers	86.0 (5)	81.1 (7)	80.4 (7)
Telephone and telegraph operators	78.5 (6)	82.2 (5)	82.9 (5)
Hairdressers, barbers, beauticians	75.9 (7)	81.9 (6)	82.3 (6)
Medical, dental and veterinary workers	71.3 (8)	72.6 (8)	73.8 (8)
Tobacco preparers and tobacco product makers	69.0 (9)	69.4 (21)	66.8 (24)
Cooks, waiters/Waitresses, bartenders	68.7 (10)	70.1 (10)	72.5 (9)
Launderers, drycleaners, and pressers	23.8 (34)	71.2 (9)	69.8 (10)

Tables 3.4.5 and 3.4.6 list the highest percentage of male and female dominated occupations respectively in 1986, 1991 and 1996. All of the top 10 occupations for each gender can be explained by 12 occupations for each of the 3 time periods

observed. During this 16 year period females have become more prominent in professional and clerical occupations, which have risen to join the top 'female' occupations, e.g. bookkeepers and cashiers; clerical n.e.c.; and clerical supervisors. Also, there was a rise in the number of service workers n.e.c. in 1991 that continued through to 1996. During the same time period there was a tendency for 'male occupations' to be more labour intensive, e.g. wood preparation workers and paper makers; and cabinet makers and related woodworkers.

Table 3.4.5: The Highest Male-Dominated Occupations (Based on Percentage Male in Each Occupation) in New Zealand, 1986, 1991 and 1996.

Occupation	1986	1991	1996
Bricklayers, carpenters, and other construction workers	99.2 (1)	99.1 (1)	98.9 (1)
Stationary engine and related equipment operators n.e.c.	99.0 (2)	98.4 (4)	98.7 (2)
Transport conductors	98.9 (3)	94.9 (10)	87.5 (20)
Miners, quarrymen, and well-drillers	98.6 (4)	98.5 (3)	97.8 (4)
Stone cutters and carvers	98.5 (5)	98.9 (2)	96.9 (6)
Aircraft and ships officers	97.5 (6)	95.7 (8)	96.6 (7)
Plumbers, welders, sheet-metal and structural metal preparers and erectors	96.8 (7)	96.7 (6)	98.1 (3)
Forestry workers	96.6 (8)	96.1 (7)	94.8 (9)
Machinery fitters, machine assemblers, and precision instrument makers (except electrical)	96.5 (9)	97.5 (5)	97.5 (5)
Painters	96.1 (10)	94.7 (12)	94.8 (10)
Wood preparation workers and paper makers	94.2 (13)	94.9 (9)	93.4 (13)
Cabinet makers and related woodworkers	92.2 (18)	91.8 (17)	95.8 (8)

Table 3.4.6: The Highest Female-Dominated Occupations (Based on Percentage Female in Each Occupation) in New Zealand, 1986, 1991 and 1996.

Occupation	1986	1991	1996
Stenographers, typists and card-and-tape-punching machine operators	98.3 (1)	96.3 (1)	96.0 (1)
Housestaff and related housekeeping service workers n.e.c.	86.0 (2)	82.4 (4)	80.7 (4)
Telephone and telegraph operators	85.6 (3)	82.7 (5)	79.6 (6)
Housekeeping and related service supervisors	85.4 (4)	86.9 (2)	86.1 (3)
Hairdressers, barbers, beauticians	85.1 (5)	86.8 (3)	87.3 (2)
Computing machine operators	84.3 (6)	69.5 (11)	68.1 (14)
Tailors, dressmakers, sewers, and upholsterers	78.9 (7)	72.7 (10)	69.4 (12)
Bookkeepers, cashiers	75.4 (8)	78.8 (6)	80.0 (5)
Clerical n.e.c.	73.1 (9)	77.2 (7)	73.6 (10)
Medical, dental and veterinary workers	72.4 (10)	73.1 (9)	74.0 (9)
Service workers n.e.c.	54.2 (20)	75.0 (8)	77.8 (7)
Clerical supervisors	70.9 (12)	60.7 (16)	76.9 (8)

Alternative methods in which to measure the overall occupational segregation of males and females is the use of indices that encompass all occupations. Typically, such indices either measure horizontal occupational segregation (males and females

employed in various types of occupations), or vertical occupational segregation (the level of seniority for males and females in various occupations). As no one index can cover both horizontal and vertical segregation, it is important to identify and apply a variety of indices that have been commonly used at both the horizontal and vertical level.

### **3.5 Occupational Segregation in the New Zealand Labour Market - Horizontal Segregation**

Whilst there are a variety of indices for measuring the extent of horizontal occupational gender segregation, Siltanen *et al.* (1995) noted that “*on closer inspection many of these indices turn out to be variations of a basic index, or simply different ways of expressing the same index*” (p. 87). In particular, Siltanen *et al.* identified five main horizontal segregation indices that were repeatedly used in various studies: The Index of Dissimilarity (ID); the Sex Ratio (SR); the Women and Employment index (WE); the Gini index (G) and the Marginal Matching Index (MM).<sup>10</sup>

The ID has been the most widely used measure of occupational segregation and has been applied to data in countries such as the U.S. (Jacobs, 1989), the U.K. (Tarling, 1988) and in New Zealand by Van Mourik *et al.* (1989). ID is expressed as the proportion of all females who are in ‘female occupations’ minus the proportion of all males in ‘female occupations’. For the ID index, along with the SR and G indices, ‘female occupations’ are regarded as those where females are over-represented relative to their share of the labour force. Similarly, ‘male occupations’ are those in which males are over-represented relative to their share of the labour force as a whole (Siltanen *et al.*, p. 90).

$$\text{Therefore: } ID = F_f/F - M_f/M \quad (1)$$

Where:  $F_f$  = Number of females in ‘female occupations’;  
 $F$  = Number of females in the labour force;

---

<sup>10</sup> Proofs for the ID, SR, WE, G and MM indices can be found in Siltanen *et al.*, 1995, pp. 90-5.

$M_f$  = Number of males in 'female occupations', and  
 $M$  = Number of males in the labour force.

The SR index has been used by the Department of Employment in the U.K. (Harkin, 1981, 1992). The index is the actual number of females in 'female occupations'; divided by the number of females there would be in these occupations if no segregation existed, minus the equivalent ratio of females in 'male occupations'. This is all divided by the total number of workers in the labour force divided by the number of females in the labour force (Siltanen *et al.*, 1995, p. 91).

$$\text{Therefore: } SR = N/F(F_f/N_f - F_m/N_m) \quad (2)$$

Where:  $N$  = Total number of workers in the labour force;  
 $N_f$  = Total number of workers in 'female occupations';  
 $F_m$  = Number of females in 'male occupations', and  
 $N_m$  = Total number of workers in 'male occupations'.

Alternatively a standardised version can be used that provides a constant upper limit so that comparisons can be made with other indices utilised.

$$\text{Therefore: } SR^* = F_f/N_f - F_m/N_m \quad (3)$$

The WE index was introduced in an OECD report in 1980. It is simply defined as absolute sum of the differences between the observed and expected proportions of females in each occupation. (Siltanen *et al.*, 1995, p. 91)

$$\text{Therefore: } WE = \sum |F_i/F - N_i/N| \quad (4)$$

Where:  $F_i$  = Number of females in occupation<sub>(i)</sub>, and  
 $N_i$  = Total number of workers in occupation<sub>(i)</sub>.

Or:  $WE = ID[2M/N]$  (5)

The G index differs from most indices of inequality as it takes direct account the way occupations are distributed throughout the possible levels of female to male concentration. For the G index, occupations are ordered by the ratio of females to males in each occupation, therefore running between the extremes of complete ‘femaleness’ and complete ‘maleness’ (ibid., p. 92). Despite several formulas available for the G index, Siltanen *et al.* simplified it as:

Therefore:  $G = 1/FM \sum_{i=2}^n \{M_i \sum_1^{i-1} F_t - F_i \sum_1^{i-1} M_t\}$  (6)

Where:        i = ith occupation, and  
                   t = an occupation included in the cumulative total.

The MM index was developed by Siltanen *et al.* and used for reports on occupational gender segregation in the European Community (p. 15). The index differs from the others discussed above in its definition as it measures the strength of relationship between gendered occupations and the gender of incumbents. For this index ‘female occupations’ are defined as those with the highest concentration of females that together have the same absolute number of workers, male and female, as there are females in employment. ‘Male occupations’ are defined as those with the highest concentration of males which together have the same number of workers, male and female, as there are males in employment (ibid., p. 15). Hence, the MM index is the number of females in ‘female occupations’ multiplied by the number of males in ‘male occupations’, minus the number of females in ‘male occupations’ multiplied by the number of males in ‘female occupations’. This is collectively divided by the total number of male workers in the labour force multiplied by the total number of female workers in the labour force.

Therefore:  $MM = (F_r M_m - F_m M_f) / FM$  (7)

Where:  $M_m$  = Number of males in 'male occupations'.

Siltanen *et al.* noted that results of these indices would depend on the definition of 'male occupations' and 'female occupations'. The definitions chosen above for the ID, SR, WE and G indices would involve choosing a cut-off point for occupations ordered by the female to male ratio. However, the cutting point for the MM index is selected to "provide a consistent measurement of the segregation relationship, by adjusting to changes in the number of persons employed" (p. 15).

Furthermore, Siltanen *et al.* identified that direct comparisons of the 5 indices cannot be achieved due to the similarity of 2 of the indices with a third. The WE and G indices are strongly related to the ID measurement of segregation. As equation (5) shows, the WE is equal to the ID multiplied by twice the male share of the labour force. Therefore, comparisons involving the two indices would show conflicting results as the difference between the two indices lies in the gender composition of the labour forces and not with the issue of segregation. Regarding the G index, once occupations are sorted into the two gendered sections, the G and ID index become the same. Because of the relationship between the ID index and the WE and G indices, only the ID, SR and MM indices have been applied to the New Zealand data in this thesis. Thus, any conflicting results between the ID and WE is explained by labour force composition. Also, whilst the ID index is a version of the G index, the ID has been calculated due to its wide use and comparability with other studies (Siltanen *et al.*, 1995, p. 94).

As far as the results of the ID, SR\* and MM indices applied to New Zealand occupational data is concerned, Table 3.5.1 displays the results for 6 time periods: 1971, 1976 and 1981; and 1986, 1991 and 1996. From these results, 2 issues arise. Firstly, as each index varies in its construction, inevitable differences arise in the values of one index compared to another. Between 1971-1981 the MM index decreased by 0.9 percent but between 1986-1996 the decrease was more substantial at 9.9 percent. Similarly, whilst there was a small percentage decrease of 3 percent

between 1971-1981 for the SR\* index, the percentage change between 1986-1996 was 8.5 percent. Yet, percentage changes for the ID index during the 2 time periods displayed the same trend but at a different magnitude. Between 1971-1981, the ID index decreased by 8.3 percent. However, for 1986-1996, the decrease was slightly larger at 11.3 percent. In an attempt to identify an appropriate measure of horizontal gender segregation from the various indices available, Siltanen *et al.* listed and applied 7 criteria to the indices observed. From these 7 criteria, the SR\* index failed on 4 counts, the ID index on 2 and the MM index met all criteria outlined.<sup>11</sup>

Table 3.5.1: The MM, ID and SR\* Indices of Horizontal Occupational Segregation in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.

Year	MM	ID	SR*
1971	.563	.63	.564
1976	.572	.616	.574
1981	.558	.578	.547
1986	.537	.548	.527
1991	.516	.525	.509
1996	.484	.486	.482

Although it is difficult to determine the level of significance for such changes, the last 3 decades have shown an improvement in New Zealand females entering 'male occupations'. However, the largest improvements have come about from 1986 onwards for all 3 indices used.

### 3.6 Occupational Segregation in the New Zealand Labour Market - Vertical Segregation

Smith (1983) ascertained that concerning analysis of horizontal gender segregation, "*although they [horizontal gender segregation] take account of the degree to which men and women are differentially distributed between occupations, they fail to consider the level of seniority within an occupation*" (p. 42). Therefore, vertical gender segregation also requires analysis. In terms of a total analysis of vertical

<sup>11</sup> The 7 criteria involved (1) Symmetry regarding males and females (2) A constant upper limit (3) A constant lower limit (4) Size invariance (5) Occupation equivalence (6) Sex composition invariance (7) Gendered occupations invariance. Siltanen *et al.* found that the ID measurement failed on the sixth and seventh account and the SR measurement failed on the first, second, sixth and seventh account. Of the other 2 indices that were applied by Siltanen *et al.*, the WE index failed on the same accounts as the SR index whilst the G index failed on the same accounts as the ID index.

gender segregation, like horizontal gender segregation, there is no clear way in which to provide information on occupations that show the level of vertical gender segregation. Census data, although limited in its usefulness, provides the only real option as far as an overall comparison is concerned. Schemes for grouping data to highlight vertical gender segregation have varied across studies. Smith (1981 and 1983) grouped occupations that were similar in the use of skills, materials and techniques in the same type of environment. This involved identifying workers into 3 occupational groups of employers and self-employed, white-collar workers and manual workers. White-collar workers were further classified as higher professionals, lower professionals, administrators and managers, clerical workers, sales-workers, and foremen and supervisors. Other studies by Moir (1977), Brosnan (1987), Gwartney-Gibbs (1988) and Van Mourik *et al.* (1989) used various levels of the New Zealand Standard Classification of Occupations to test for such segregation. The actual tests employed for vertical gender segregation were generally similar across most studies. Whilst the studies by Smith (1983) concentrated on white-collar workers only, the work by Moir (1977), Brosnan (1987), Gwartney-Gibbs (1988) and Van Mourik *et al.* (1989) looked at all workers. Three measurements of vertical gender segregation have been put forward by studies concentrating on New Zealand data.

The Crude Measure of Differentiation (CMD) employed by Moir (1977), Smith (1983), Brosnan (1987) and Gwartney-Gibbs (1988) measured the percentage of females who would have to change occupations for their occupational composition to be identical to that of males.

$$\text{Therefore: CMD} = \frac{1}{2}(\sum | (X_a/\sum X_a) - (Y_b/\sum Y_b) | )100 \quad (8)$$

Where:  $X_a$  = Number of males in occupational category<sub>(a)</sub>;  
 $\sum X_a$  = Total number of males in all occupational categories;  
 $Y_b$  = Number of females in occupational category<sub>(b)</sub>, and  
 $\sum Y_b$  = Total number of females in all occupational categories.



Problems of the occupational grouping selected arise when such measures are used. Smith (1983) noted that “*the size of each occupational category in relation to the total (the occupational structure) may operate to distort the amount of occupational differentiation*” (p. 45). Furthermore, Van Mourik (1989) determined that ‘*it was not meaningful to look at a redistribution of females across occupations required to reduce occupational segregation without taking into account that this may have an unrealistic effect on the occupational distribution of the labour force*’ (p. 34). Therefore, to rectify this problem, Moir (1977) and Smith (1983) also implemented a Standardised Measure of Differentiation (SMD). The measure assigned 1,000 people to each occupational category with the same gender ratio for each category as actually existed in the raw occupational data.

$$\text{Therefore: SMD} = \frac{1}{2}(\sum (X_c/\sum X_c) - (Y_c/\sum Y_c) | )100 \quad (9)$$

Where:

$$X_c = (X_a/Z_a)1000;$$

$$Z_a = \text{Total number of males and females in occupational category}_{(a)};$$

$$\sum X_c = \sum (X_a/Z_a)1000;$$

$$Y_c = (Y_a/Z_a)1000;$$

$$Y_a = \text{Number of females in occupational category}_{(a)}, \text{ and}$$

$$\sum Y_c = \sum (Y_a/Z_a)1000.$$

As Van Mourik *et al.* (1989) pointed out, “*it has no sensible interpretation because it is unduly sensitive to fluctuations in the sex ratio in occupations which account for only a very small number of workers*” (p. 34). However, such an index is vulnerable to distortion, i.e. if there was an occupation with only one worker. Hence, Van Mourik *et al.* presented a further index,  $S_t$ . This measured the minimum proportion of males and females who would have needed to change their occupations to make the occupational distributions of both genders the same. This was under the condition that the total number of jobs for each occupation remained unaffected.

$$\text{Therefore: } S_t = 2(X_a/Z_a)(1 - X_a/Z_a)CMD \quad (10)$$

Table 3.6.1 shows the results of recent studies conducted for the New Zealand labour market using CMD, SMD and  $S_t$  indices. The study of only white-collar workers by Smith (1983) using both the CMD and SMD measure found that the level of vertical gender segregation increased from 1956-1981. Other studies that included all workers had slightly differing results. Moir (1977) found that for all workers the CMD and SMD measures both decreased slightly between 1956-1971. However, this was calculated using data only at a 1-digit level.<sup>12</sup> Gwartney-Gibbs (1988) noted a small reduction at both the 1 and 2-digit level, using the CMD measure between 1971-1981. By using CMD and  $S_t$  measurements, Van Mourik *et al.* (1989) found that vertical gender segregation slowly decreased for most indices used between 1971-1986. Van Mourik *et al.* decomposed changes in the CMD and  $S_t$  measurements from 1 period to another. For the CMD measurement, it was the contribution of the change in the demand for occupations, in the sex ratio within each occupation and interaction effects. The authors found the contribution of the change in the demand for occupations and the gender ratio within each occupation collectively caused a lowering of the CMD index. For the  $S_t$  measurement, it was the contribution of the change in the CMD, in female labour force participation and interaction effects. Van Mourik *et al.* found increased female labour force participation counteracted the decline.

Table 3.6.1: Summary of Results for CMD, SMD and  $S_t$  Indices for New Zealand Studies, 1956, 1961, 1966, 1971, 1976, 1981 and 1986.

Author	Index	Digit Level	1956	1961	1966	1971	1976	1981	1986
Moir (1977)	CMD	1	44.5	48.2	46.1	42.8	-	-	
	SMD	1	47.2	51.1	50.2	44.1	-	-	
Smith (1983) <sup>1</sup>	CMD	1	33.1	32.9	33.3	39.7	40.9	41.2	
	SMD	1	47.2	49.4	49.7	53.3	51.9	48.6	
Gwartney-Gibbs (1988)	CMD	2	-	-	-	62.5	60.5	57.6	
	CMD	1	-	-	-	42.8	42.4	41.9	
Van Mourik <i>et al.</i> (1989)	CMD	1	-	-	-	43.5	42.13	41.47	40.05
	CMD	4	-	-	-	74.15	71.82	67.84	65.28
	$S_t$	1	-	-	-	17.16	17.21	17.58	18.03
	$S_t$	4	-	-	-	32.13	32.29	31.33	30.51

<sup>1</sup> Smith's study involved white-collar workers only.

Source: Moir (1977), Smith (1983), Gwartney-Gibbs (1988), and Van Mourik *et al.* (1989).

Despite a number of studies conducted using data from the previous 2 decades, there has been little analysis of the issue of vertical gender segregation in New Zealand

<sup>12</sup> 1-digit data involves listing occupations into 7 main areas.

beyond the work by Van Mourik *et al.* in 1989. Therefore, this thesis analyses the CMD, SMD and  $S_t$  indices for 1971, 1976, 1981; and 1986, 1991 and 1996 for both white-collar workers in Table 3.6.2 and white-collar and manual workers in Table 3.6.3. However, there are a number of factors that need explaining when constructing such indices. The data set used by studies investigating the level of vertical gender segregation in New Zealand has generally consisted of numbers of full-time salary and wage earners. Part-time workers, employers, the self-employed and unpaid workers in family businesses were not considered as Van Mourik *et al.* (1989) noted that consistent data for such groups were not available at a higher occupational digit classification (p. 36). The level of aggregation for the data set used here somewhat overcomes this problem as all but unpaid workers in family businesses are included in the data set. We must be mindful though that the large proportion of part-time workers, especially female, may have an influential effect on the outcome.

Table 3.6.2: The CMD, SMD and  $S_t$  Measurement of Vertical Gender Segregation For White-Collar Workers in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.

Year	CMD	SMD	$S_t$
1971	31.5	46.4	15.5
1976	34.0	43.4	16.9
1981	32.9	42.2	16.4
1986	33.6	33.6	16.8
1991	30.4	26.2	15.2
1996	25.6	22.4	12.7

Table 3.6.3: The CMD, SMD and  $S_t$  Measurement of Vertical Gender Segregation for All Workers in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.

Year	CMD	SMD	$S_t$
1971	34.3	48.1	14.8
1976	35.4	42.4	15.7
1981	35.8	41.6	16.5
1986	33.0	34.3	15.5
1991	32.6	27.5	15.6
1996	28.9	24.6	14.1

The 2-digit occupational classification has meant that the data set in this thesis can only distinguish between those involved in white-collar activities and those in manual activities. White-collar occupational classifications are defined as professional and technical activities, administrative and managerial activities, clerical activities, sales

activities, foremen, inspectors and supervisory activities. This differs slightly from studies by Smith (1981 and 1983) that defined professional workers as either higher professional or lower professional employees.<sup>13</sup>

Regarding Table 3.6.2 which shows the results for white collar workers, for 1971-1981, both the CMD and  $S_i$  indices showed a slight increase whilst the SMD index displayed a slight decrease. Yet, between 1986-1996, all 3 indices decreased by a considerable amount. The CMD dropped by 8, the SMD by 11.2 and the  $S_i$  by 4.1. Despite vertical gender segregation worsening between 1971-1981, there has been a significant improvement for females employed in white-collar activities between 1986-1996. When all workers were included in the 3 indices analysed, Table 3.6.3 shows that overall, results do not depart greatly from the findings of white-collar workers. Again, only the SMD index decreased between 1971-1981 whilst all 3 indices declined between 1986-1996. Nevertheless, the reduction between 1986-1996 was not as pronounced as for white-collar workers only, during this period.

### **3.7 Effects of Occupational Segregation on the Work Force**

Previous studies into occupational differences in New Zealand, and the results presented above, have shown that there is still a fair degree of occupational segregation at both the horizontal and vertical level. To what extent, if any, would occupational segregation disadvantage females in the work force? Van Mourik *et al.* (1988) indicated a variety of reasons why such segregation in New Zealand was unacceptable. Studies by Smith (1981, 1983) found that females were not evenly spread throughout occupations. Females made up a small proportion of the higher paid white-collar occupations and a far larger proportion of lower paid professional and clerical occupations. Werneke (1978) believed that because of this, females were in a more vulnerable situation than males during times of economic downturn or recession. Furthermore, Van Mourik *et al.* (1989) claimed that as a large number of females in the work-force were involved in part-time activities, such jobs carried less job security and were again prone to redundancies when the economy experienced a

---

<sup>13</sup> A full classification of occupations into either white-collar or manual groups is included in the Appendix A.

downturn (p. 31). Yet, these authors are incorrect on both counts. The economic restructuring and recession that occurred during the late 1980's and early 1990's in New Zealand impacted far more negatively on males than females. Between 1986-1991 the total number employed in New Zealand decreased by around 100,000 but of these only around 3,750 were females (Statistics New Zealand, 1999, p. 87). There are two reasons for this. Firstly, the restructuring of the New Zealand economy impacted heavily on industries and occupations such as the manufacturing sector that employed a large percentage of males. Females were instead concentrated in service-based industries and occupations that experienced an increase in demand, thus insulating to a certain extent the employment changes that occurred during this time. Secondly, as a large proportion of females were concentrated in part-time positions, this also meant that females became somewhat immune from the economic changes during this period whilst males experienced a large decrease in full-time positions available to them. Between 1986-1991, females employed in full-time positions decreased 4.5 percent, compared with a decrease of 12.7 percent for males (ibid., p. 87).

Van Mourik *et al.* (1989) stated that "*occupational segregation resulting from labour market imperfections such as discriminatory attitudes hinders the optimal allocation of human resources*" (p. 31). Such impediments to occupational mobility in response to supply factors such as education and training and demand factors through economic restructuring, decreases the potential growth in society's productive capacity. This in turn puts upward pressure on the unemployment rate. However, as Chapter 2 has illustrated, recent findings have shown that females are now out-achieving males in enrolments and qualifications. Furthermore, though Van Mourik *et al.* asserted that the female labour force was concentrated in relatively few occupations during employment growth, in New Zealand's case, the restructuring of the economy which began in the mid-1980's had caused a shift towards growth in service sector industries, which females predominantly entered.

Van Mourik *et al.* highlighted a social motive for aiming towards a decrease in occupational segregation. They contended that a division of labour existed because "*Discriminatory practices in hiring and career advancement and educational stimuli*

*based on traditional norms and practices tend to generate a division of labour which may not necessarily match individuals' natural abilities, aptitudes and interests to the jobs available"* (p. 33). The fact that females do not have the opportunity to enter occupations of their choice and are unable to reach their full potential is to say the least questionable. When considering training and initial entrance into the work force, there appears to be no observable impediment that hinders females entering an occupation that they wish to be part of. Legislation has meant that all vacancies carry an equal employment opportunity for all prospective employees. Further, campaigns in New Zealand over the last three decades have emphasised and encouraged females into entering otherwise 'male' occupations, e.g. the "girls can do anything" campaign of the 1970's onwards.

Van Mourik *et al.* also highlighted a danger in the reduction in horizontal segregation that may correspond with an increase in vertical segregation. Males and females would make up a more even proportion of those entered in occupations. However, males would take up more senior positions in 'female occupations' than would females in 'male occupations'. Whilst Van Mourik *et al.* conceded that at that stage this was not the case in New Zealand, data concerning horizontal and vertical segregation between 1986-1996 has found that both forms of segregation have decreased.

Though the overall extent of occupational segregation has been mixed in terms of the position of females, such indices mask the fact that during the last 10 years occupational segregation has been to the advantage of females, and to the detriment of males. This is because males have been employed in occupations that have been dented during an economic recession. However, like similar enrolments in education at various levels, the end goal, which many view as a necessity, equal proportions of both genders in most occupations, is questionable and probably unachievable.

Probably, the biggest concern made by those who have decried the fact that females are concentrated in few positions is its relation to the issue of earnings. Gwartney-Gibbs (1988) stated that "*the best documented penalty associated with working in*

*female typed occupations is lower earnings, both for men and women” (p. 264).*

Therefore, it is the issue of pay differentials in New Zealand that we turn to next.

### **3.8 Pay Differentials in the New Zealand Labour Market**

Given that differences still persist in terms of the occupation males and females have entered into; there has been a high level of attention towards pay differentials by researchers. During recent decades many researchers found that occupations that have a high percentage of female workers generally paid less than occupations with a low percentage of female workers. Also, there is often a difference between earnings of males and females within the same occupation. Analysis of pay differentials provides various political and special interest groups with a larger variety of options in which to press their views on pay differences. It is also possible to arrive at a range of different estimates of the earnings gap depending on what is included as a measure and which types of workers are involved.

#### **3.8.1 General Comparisons of Wages**

Generally, discussion of pay equity is couched in terms of wages. Much has been made of the average yearly wage rate received by all males and females, working or otherwise. The New Zealand Alliance Party (1997) noted that if one was to include all persons, the female median annual income was 57 percent of what all males earned. For only those in the work force the female median income was \$19,200 and the male median income was \$28,800, indicating that working females earned 66 percent of what males earned (p. 1).

Often, comparisons of earnings between the genders involve analysis of weekly and hourly earnings, which provides another angle from which to view earnings differences that may exist. In a press release by the New Zealand Labour Party (1998), it was mentioned that the household economic survey found that if all males and females were included, females earned on average \$380 a week compared with \$617 a week for males. This is a wage gap of 38 percent (p. 1). This did not mention what

groups of males and females were included, i.e. whether they were referring to all males and females or just those currently working.

The New Zealand government (1998) noted that working females earned 75 percent of the total weekly earnings of males. This gap was smaller than for Australia and Canada that was 66 percent and 73 percent respectively of total weekly earnings of males' (p. 1). If data is classified further into year groups, and whether females had any offspring, differences in wages between genders reduce even more. Data in the U.S. provides a striking example of wage parity. The NLS of Youth found that among workers with no offspring, who were aged 27-33, female earnings were 98.0 percent of males (Charen, 1998, p. 2). At an hourly rate, the government outlined that in 1997 females earned 80.5 percent of males total hourly earnings (New Zealand Government, 1997, p. 1). Indeed, Figure 3.8.1 shows that the ratio of female total hourly and weekly earnings to males has not changed significantly over the last decade.

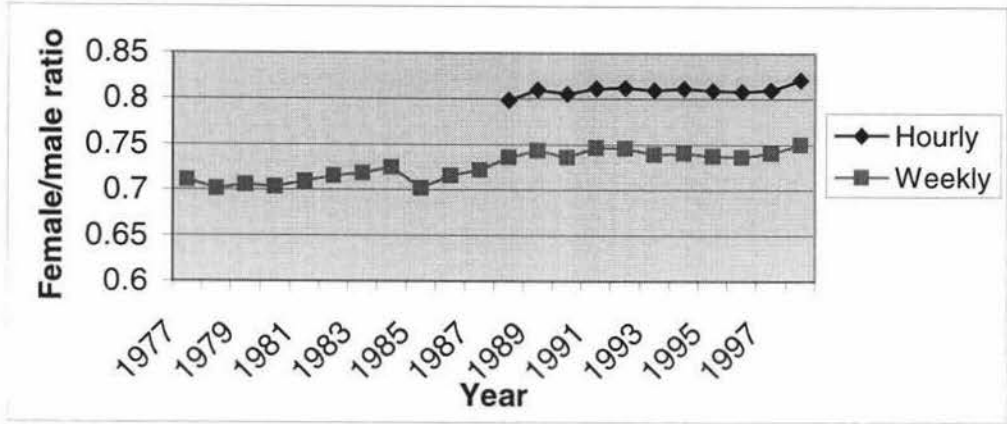
Hyman (1994) stated that *"There is no 'right answer' on average earnings or the female-male ratio. Each measures something slightly different and is relevant to different questions"* (p. 90). However, Hyman noted that *"to access the extent of discrimination, ordinary-time hourly earnings ... are often used, since working fewer hours and less over-time may be regarded as a non-discriminatory reason for women's lower average pay"* (p. 90). A breakdown of ordinary hourly and weekly earnings is illustrated in Figure 3.8.2. Both ratios have increased moderately over the time period. Figure 3.8.3 displays the average overtime hourly and weekly ratios for the last 10 years. During the same time period as Figure 3.8.2, the ratios for overtime work stagnated somewhat. Also, overtime-weekly earnings actually decreased from 1988-1998.<sup>14</sup>

---

<sup>14</sup> The definitions for average hourly ordinary time earnings; average weekly ordinary time earnings and average weekly earnings are included in Appendix C.

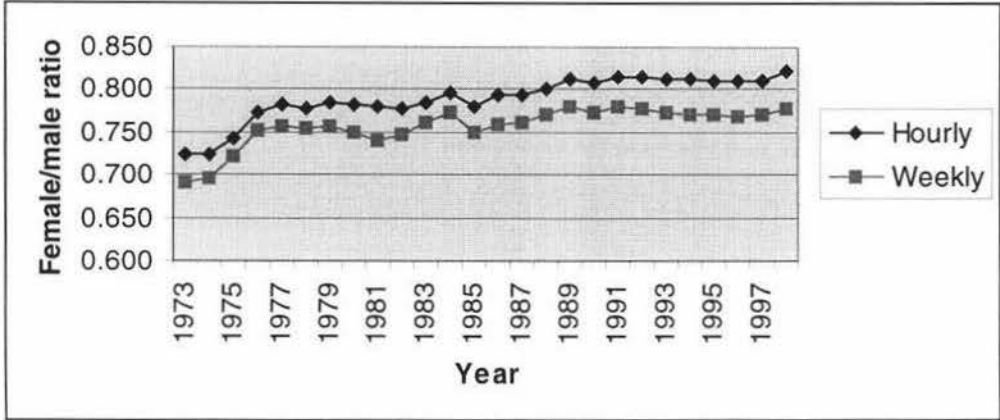


Figure 3.8.1: Total Earnings for the Female/Male Ratio of Average Hourly Earnings (1988-1998) and Average Weekly Earnings (1977-1998) in New Zealand.



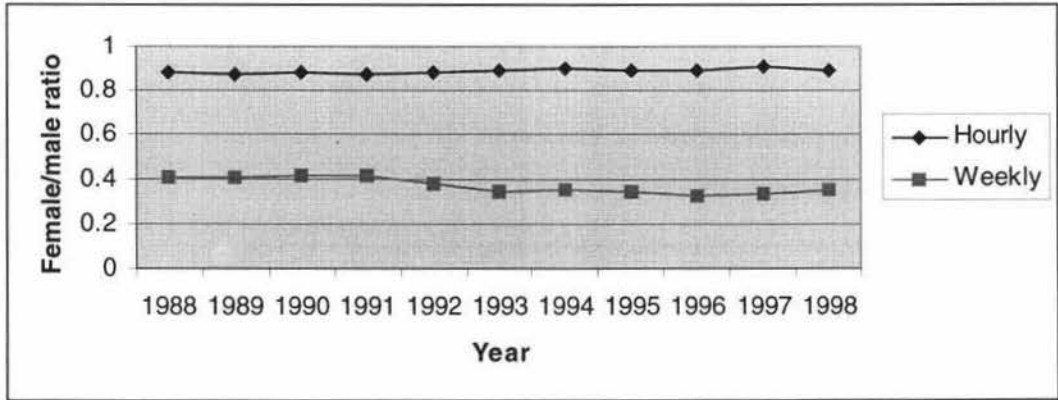
Sources: Department of Labour, 1977-1987; Statistics New Zealand, *Key Statistics*, 1988-1997.

Figure 3.8.2: Total Earnings for the Female/Male Ratio of Average Hourly and Weekly Ordinary Time in New Zealand, 1973-1998.



Source: Department of Labour, 1973-1987; Statistics New Zealand, *Key Statistics*, 1988-1997.

Figure 3.8.3: Total Earnings for the Female/Male Ratio of Average Hourly and Weekly Overtime in New Zealand, 1973-1998.



Source: Statistics New Zealand, *Key Statistics*, 1988-1998.

Hyman (1981), reviewing a book pertaining to the earnings of females in Great Britain<sup>15</sup>, related the book's findings to the New Zealand situation. Hyman claimed that if females worked the same amount of average hours as males in both ordinary and over-time by working an extra 1.1 and 2.1 more hours in ordinary and over-time respectively, the \$79.82 difference in gross weekly earnings in February 1980 would narrow by \$16.72, or 20.9 percent. Even though Hyman distinguished between ordinary and over-time earnings, this was still a rather simplistic approach in attempting to find out reasons for differences in earnings. More specifically, it did not indicate the type of employment that has contributed to the increasing participation of females, i.e. the distinction between full-time and part-time work.

### **3.8.2 Full-Time and Part-Time Workers**

As was shown in Table 3.1.1, numbers of females in full-time and part-time work have continued to grow. Actual numbers of female full-time workers grew at a faster rate than numbers of male full-time workers for 1971-1976, 1976-1981 and 1991-1996. Numbers of males working part-time grew at a faster rate than female numbers working part-time over all time periods observed. Nevertheless, as there is still a larger number of females in part-time employment than males, many have seen this heavy concentration of females in part-time work as a disadvantage. Comparatively low rates of pay, unsuitable employment conditions and little employment security has been listed as possible disadvantages (Statistics New Zealand, 1999, p. 89). The fact that females are more prevalent in part-time employment is reiterated when a difference in the number of hours worked per week between the genders is broken down. In 1996, females were more likely to work up to 39 hours per week, whilst more males were likely to work 40 or more hours per week. Among full time workers, males and female percentages working 40 to 49 hours were fairly similar (52.7 percent compared with 53.3 percent respectively). Females were more likely to have worked between 30-39 hours (26.8 percent compared with 7.1 percent for males) whilst males had the highest probability of working 60 or more hours (18.8 percent for males compared with 8.9 percent for females) (ibid., p. 119).

---

<sup>15</sup> Sloane, P.J., (1980), *Women and Low Pay*.

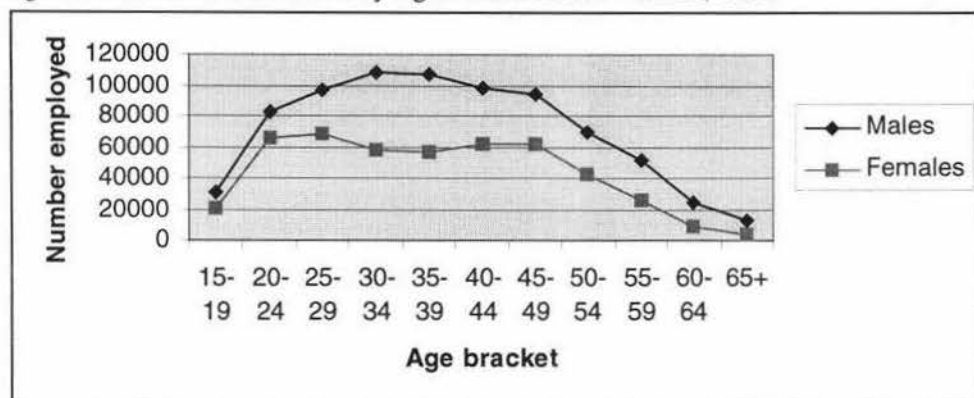
One has to ask whether the instance of workers wanting more hours of work would fall more heavily on part-time workers than full-time workers? Since there are more females than males working part-time, would females also experience a higher instance of under-employment? Up until recently, this appeared to be the case. In a media release on the behalf of the New Zealand Council of Trade Unions (1998), Secretary Angela Foulkes noted that many females wanted to work longer hours but many had no choice but to work part-time. Foulkes also pointed out that New Zealand had the third highest rate of involuntary part-time employment among females within the developed OECD countries. Whilst the percentage of females wanting more hours of employment has risen, it was not mentioned in the article that, among part-time workers in 1997 more males than females wanted more hours of work. Davidson and Bray (1994) examined the level of underemployment among part-time workers between 1987 and 1993. During this time, there were a considerably higher percentage of females wanting more hours of employment. However, recent data concerning under-employment portrays a different scenario. In 1997, 27 percent of females working part-time preferred more hours of work (Statistics New Zealand, 1997). This was a slight decrease from 28 percent in 1993 (Davidson and Bray, 1994, p. 31). However, the percentage of male part-time workers wanting more hours in 1997 was higher than for females at 35 percent (Statistics New Zealand, 1997). Therefore, unlike results of previous years, it is now males who have become the gender to be considered under-employed. A reason for this sudden change most probably revolves around the ECA. This led to a severe drop in the number of male full-time workers, along with a sharp increase in male part-time workers during the 1990's.

### **3.8.3 Wages and Family Responsibilities**

For many part-time workers, especially females, participation in part-time employment is often a conscious choice and not an alternative for failing to obtain a full-time occupation. Bate *et al.* (1998) noted that the choice of part-time employment often revolves around the issue of family and child-care responsibilities, whereby it becomes a point for females to often return to the work force while continuing to maintain unpaid family responsibilities (p. 9). However, Bate *et al* also found a big

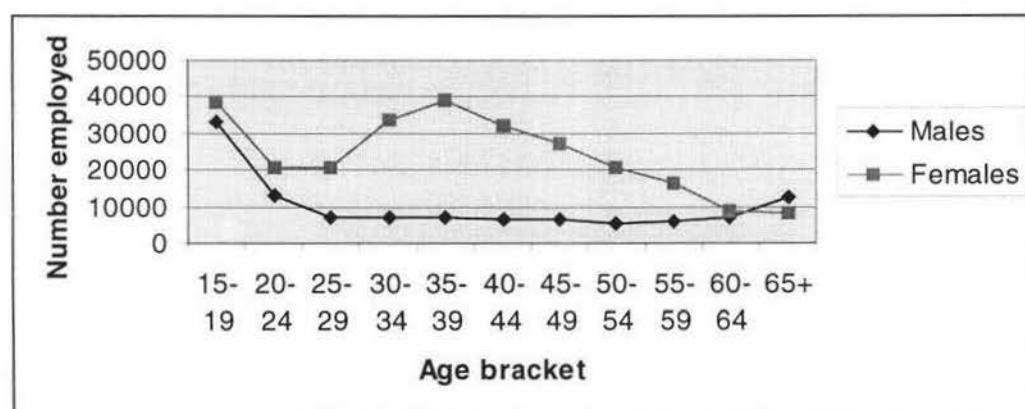
increase in part-time work activity by females past their main child care years (pp. 16-21).

Figure 3.8.4: Full-Time Workers by Age Bracket in New Zealand, 1996.



Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1996.

Figure 3.8.5: Part-Time Workers by Age Bracket in New Zealand, 1996.



Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1996.

Figure 3.8.4 illustrates that females participation in full-time work drops for those aged in their late-20's and during their 30's. This reduction represents a bi-modal pattern, more commonly referred to as an M-shaped curve. This pattern in the female labour market is due to the early years of raising a family and childcare which causes a dip in the participation rates of full-time work. Afterwards, females often re-enter the work force, leading to rising participation rates. However, increases in fertility and the rising age of females starting families has caused this trend to stagnate over recent years. Figure 3.8.5 shows the age breakdown of part-time workers in 1996. When examined by age group, there is a clear increase in the number of females participating in part-time employment during the ages of 30-40.

When looking at the breakdown of the age of children and hours worked by their mothers, the younger the child, the less hours are worked by their mother. In 1996, 61 percent of those employed females with children under one year of age worked less than 30 hours per week. When the youngest child was aged between 5-7, numbers of females employed in full and part-time occupations were fairly equal. For females with children aged between 13-17, the proportion of females in part-time employment was only 32.9 percent (Statistics New Zealand, 1999, p. 90).

Given the strong relationship between part-time work and child-care responsibilities, there is a clear distinction between males and females in terms of the earnings of couples. In 1996, the median income for males in couple-only families was \$22,600 and \$14,200 for females. Interestingly, in comparison with couple-only families, for two-parent families the median income for males jumped to \$31,900 but decreased for females to \$11,900 (Statistics New Zealand, 1998, p. 34 and p. 37). As discussed above, the probable reason for the differences is that females contribute more time looking after their offspring, whilst males may seek a higher paying job, work longer hours or take on a second job. This may be due to a loss of income as the female partner exits the labour force or shifts from a full-time to a part-time position, or compensating for extra expenses involving parenthood.

Various studies have shown that the effects of parenting on earnings have generally been to the detriment of females. Neumark and Korenman (1994) and Wood *et al.* (1993) pointed to findings in the U.S. of a perceived penalty to motherhood in terms of the earnings gap. However, this does not take into account the penalty upon others, such as the fathers who may find themselves working harder to meet financial demands that having offspring incurs. Waldfogel (1997) compared the wages of males and females at age 30 in the U.S. during 1980 and 1991 and found interesting results between mothers and non-mothers. Whilst the overall female/male wage ratio was 64 percent in 1980 and rose considerably to 84 percent in 1991, the disparity between mothers and non-mothers regarding the female/male wage ratio increased over the observed time period. In 1980, non-mothers earned 72 percent of the male wage, compared with 60 percent for mothers. By 1991, non-mothers almost reached parity with male earnings at 95 percent (an increase of 23 percent), whilst the wage

ratio for mothers only improved 15 percent to 75 percent in 1991 (p. 97). Hence, the danger of giving broad data that masks the fact that groups within such data may have made strong progress in terms of wages in comparison with males.

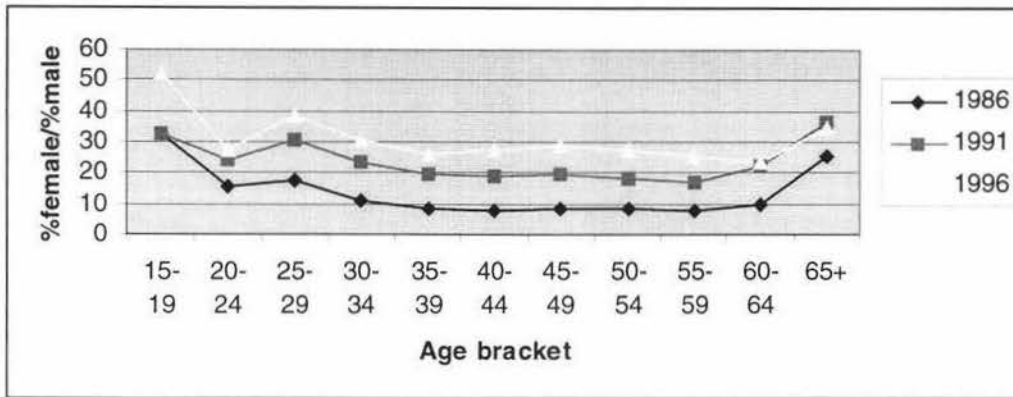
The coefficients involving family status used in the regression model by Waldfogel showed that males received a positive return for being married, and also a positive return through higher earnings for being previously married and having children. Yet, the author found females received negative returns through earning less during marriage and being a parent, even after human capital characteristics such as age, experience and education were controlled for in the regression model.

Therefore, to condense an earnings gap down to one number is fraught with misleading outcomes as it often hides any progress that have been made by females, particularly in various occupations. It should be noted that comparisons of pay differentials not only rely on what statistical analysis is used, such as hourly, weekly and median earnings, but it will also depend on the variables involved, including full-time work, part-time work, ordinary-time and over-time.

When discussing incomes for males and females, it is important to observe the current situation concerning income brackets those males and females have the greatest probability of being in. The most common income bracket for females in 1996 was the \$10,001-\$15,000 bracket with 20.04 percent of females aged 15 and over. The \$5,001-\$10,000 and \$1-\$5,000 brackets were second and third with 13.4 percent and 18.9 percent respectively. For males in 1996, the most common income bracket was between \$30,001-\$40,000, involving 13.77 percent of males aged 15 and over. The second highest income bracket of \$5,001-\$10,000 for males was only slightly behind at 13.74 percent whilst the third highest was \$10,001-\$15,000 inclusive of 12.25 percent of males aged 15 and over (Statistics New Zealand, Census of Population and Dwellings: Incomes, 1996,). It is important to note that the lower income brackets for both genders outlined above would involve many persons not in the labour force who would receive income from various sources such as student allowances, superannuation and benefit allowances.

In 1986, 4 percent of males and 0.2 percent of females aged 15 and over earned \$40,001 or more. By 1996, these percentages had increased to 20.45 percent for males and 5.74 percent for females. This represented an overall increase for males by 356 percent, and a 2,870 percent increase for females (ibid., 1996).<sup>16</sup> Indeed, by 1999, a strong indication of the progress that females have made in attaining a higher share of the higher income bracket included a doubling of the percentage of females in the top 10 percent of income earners compared with 1984. There was also a decline in the proportion of females in the bottom 20 percent of earners from around 75 percent in 1984 to 66 percent in 1984 (Nelson Mail, 1999, p. 1).

Figure 3.8.6: Ratio of the Percentage of the Female/Male Ratio of Incomes for those Earning \$40,000+ in 1986, 1991 and 1996.



Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1996.

Whilst both genders have experienced an improvement in receiving higher earnings, overall, the increase has been faster for females than males. Figure 3.8.6 shows the ratio of female percentage versus male percentage incomes greater than \$40,001 for numerous age groups in 1986, 1991 and 1996. The only instance when the ratio decreased was for the 15-19 year old age group, which declined slightly between 1986-1991, and the 65+ age group which fell moderately from 36.5 percent to 34.8 percent between 1991-1996. Excluding these exceptions, improvements in the ratios have been evident at all age brackets. The income distribution of females versus males is far closer at the younger age brackets, i.e. those aged 19-34; and those aged 65 and over. At the other end of the scale, 20.6 percent of females earned less than \$5,000 in 1996 compared with 28.9 percent in 1986. For males there was a slight

<sup>16</sup> The inflation rates for the 1986, 1991 and 1996 calendar years were 17.2 percent, 1.0 percent and 2.1 percent respectively (Statistics New Zealand, *Key Statistics*, 1991-1996).

increase in the percentage earning \$5,001 or less. This rose from 11 percent to 11.5 percent in 1986 and 1996 respectively.

Table 3.8.1: Percentage of Female Workers in the 20-24 and 25-29 Age Bracket in New Zealand, 1986, 1991 and 1996.

Income Bracket	20-24 (1986)	20-24 (1991)	20-24 (1996)	25-29 (1986)	25-29 (1991)	25-29 (1996)
1-5000	19.47	9.27	15.51	32.1	16.01	11.13
5001-10000	22.94	24.4	19.81	19.33	15.87	12.5
10001-15000	31.27	19.23	17.27	17.99	17.79	15.18
15001-20000	19.43	17.31	13.85	16.55	11.85	10.54
20001-30000	4.15	24.24	24.59	10.66	22.72	24.25
30001-40000	0.19	3	4.72	0.86	9.99	14.06
40001-50000	0.03	0.32	0.58	0.15	2.18	3.7
50000+	0.04	0.14	0.26	0.18	1.17	2.36

Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1986-1996.

Table 3.8.2: Percentage of Male Workers in the 20-24 and 25-29 Age Bracket in New Zealand, 1986, 1991 and 1996.

Income Bracket	20-24 (1986)	20-24 (1991)	20-24 (1996)	25-29 (1986)	25-29 (1991)	25-29 (1996)
1-5000	8.9	5.48	12.4	3.86	2.86	4.32
5001-10000	17.19	25.74	18.22	10.04	14.82	10.03
10001-15000	32.63	13.29	13.25	21.36	8.85	8.52
15001-20000	25.38	19.4	14.7	26.56	13.1	9.16
20001-30000	12.42	26.48	27.93	29.62	30.54	30.16
30001-40000	1.11	6.17	8.32	3.68	17.42	20.85
40001-50000	0.22	1.28	1.88	1	6.69	8.83
50000+	0.21	0.63	1.17	0.9	4.27	6.81

Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings*, 1986-1996.

For many, the ages of 20-29 are the development years for workers in terms of their proposed career choice. Tables 3.8.1 and 3.8.2 highlight the percentage of individuals in the 20-24 and 25-29 age brackets including all income sources in 1986, 1991 and 1996 for males and females respectively. For the 20-24 age bracket, there has been some similarity in terms of changes over the income levels for both males and females. The largest growth was for the \$20,000-\$30,000 income bracket for both genders, whilst the largest decrease for both genders has been the \$10,000-\$15,000 income bracket. However, for the 25-29 year age group the largest percentage increase for females has been the \$20,000-\$30,000 income bracket whilst for males it has been \$30,000-\$40,000. The largest reductions have been the \$1-\$5,000 income bracket for females and \$15,000-\$20,000 for males. What is noteworthy is that comparing 1986 to 1996, there has been a general decrease in the percentages of males in 2 of the 4 lower income brackets. The percentage of males in most of the



higher income brackets for both age brackets has increased. For females however, there has been a larger percentage increase in most cases.

#### **3.8.4 Surveys of New Zealand Graduates**

In most instances, graduates are in their twenty's by the time they obtain some type of tertiary qualification, particularly a university degree. As there are few opportunities to analyse the earnings of workers with similar qualifications who enter the work force around the same time period, analysis of recent university graduates provides an opportunity to determine the extent of any differences in earnings that may occur between the genders. However, such studies often mask or simply do not acknowledge the recent achievements of females in terms of earnings in relation to males in the work force. Karen Burge (1997), reviewing a follow up survey of New Zealand graduates by Cox and Pollock (1997) that began in 1991 and was revisited in 1996 noted that female graduates were taking home smaller pay packets than their male colleagues in most areas of the work-force. The study showed that females earned on average 15 percent less than males and were out earned by males in 73 percent of subject areas (p. A3). Overall the study found that for those persons who attained a diploma or degree from university in 1990, the average wage for the males surveyed in 1991 was \$29,006, whilst females were closely behind earning \$27,883. The report found that by 1996, the gap for these same people had widened significantly whereby the average salary for males was \$48,244 and \$41,918 for females. Table 3.8.3 summarises these results.

Table 3.8.3: Average Salary Comparisons for Diploma/Bachelor Graduates in New Zealand, 1991 and 1996.

Field of Study	No M or F	Gender	Salary 1991\$	Female % of Male	Salary 1996\$	Female % of Male	% increase 91-96	Overall % increase
Ag/Hort	12	F	20846	80.5	27767	70.7	133.2	143.4
	31	M	25906		39254		151.5	
Archi/Plan/Survey	13	F	26392	84.7	36883	96.3	139.8	130.7
	15	M	31166		38319		123	
Biological Sciences	31	F	24690	100.8	32627	100.3	132.1	132.5
	30	M	24505		32540		132.8	
Commerce	149	F	26601	93.5	47897	87.9	180.1	186
	259	M	28449		54504		191.6	
Comp Studies/Inf. Sci	7	F	26911	97.8	41591	80.6	154.6	171.3
	34	M	27517		51627		187.6	
Cons and Applied Sci	13	F	26636	91.8	34715	103.6	130.3	122.6
	1	M	29000		33500		115.5	
Dentistry	3	F	35000	108.2	60784	88.8	173.7	191.8
	5	M	32360		68419		211.4	
Education	115	F	28448	92.7	37986	95.1	133.5	131.8
	22	M	30681		39929		130.1	
Engineering	3	F	29000	95.8	39916	86	137.6	145.7
	63	M	30285		46437		153.3	
Fine Arts/Music/Drama	8	F	30250	125.5	44312	128.1	146.5	145.1
	6	M	24109		34582		143.4	
Forestry	0	F	0		0		n.a	136.8
	3	M	31000		42396		136.8	
Humanities	135	F	26933	103.2	38622	96.8	143.4	148
	48	M	26107		39894		152.8	
Law	43	F	25962	97.4	49630	99.9	191.2	188.7
	30	M	26662		49696		186.4	
Maths/Stats/Ops. Res	13	F	27108	99.2	37958	84	140	152.7
	19	M	27334		45162		165.2	
Med/Human Bio	35	F	39268	94.2	57002	89.8	145.2	148.8
	42	M	41705		63490		152.2	
Paramedical	5	F	23090	81.9	49840	103.2	215.9	191.4
	5	M	28180		48280		171.3	
P.E./Parks, Rec.	13	F	27249	110.6	36153	86.4	132.7	150.4
	11	M	24627		41863		170	
Physical Sciences	21	F	27379	92.5	38374	94.5	140.2	138.6
	39	M	29612		40608		137.1	
Social Sciences	127	F	29367	110.6	40257	106.8	137.1	139.4
	43	M	26563		37708		142	
Technology	9	F	24000	75.5	45250	81.8	188.5	180.3
	10	M	31779		55306		174	
Theology and Divinity	1	F	21000	61.8	32000	93.2	152.4	120.6
	3	M	34000		34333		101	
Veterinary Science	8	F	35325	100.9	47000	72.3	133.1	159.3
	1	M	35000		65000		185.7	
Total graduates	1520	F	27883	96.1	41918	86.9	150.3	158.5
	738	M	29006		48244		166.3	

Source: Adapted from Figure 5.1.1 (Cox and Pollock, 1997).

However, Table 3.8.3 highlights a number of factors that need to be explored. Firstly, of approximately 12,000 survey forms sent out in 1996, 2,756 were used but

only 1,520 stated their salary in 1991 and 1996 so comparisons could be made. When graduates are categorised into the 22 graduate degrees, the problems of a small sample number become apparent. Out of the 782 females who were included, 526 graduated in only 4 diploma or degree programmes (commerce, education, humanities and social sciences). Out of the remaining 18 programmes 10 had less than 10 females in its sample, along with 7 with males in the same situation. This represents a minuscule sample size for some occupations. The use of averages to show any differences in overall wages between the genders was chosen over the use of a median value. However, a median value is not susceptible to outlier values, especially if more females are working part-time. Thus, the accuracy of these comparisons of overall gender earnings may be in doubt.

Cox and Pollock pointed out that "*Female graduates will also be disappointed to observe that after five years, in 16 of the 22 subject groups, they can anticipate lower salaries than their male classmates*" (p. 19). Yet, this statement ignores the fact that in many areas, females have improved their position in terms of earnings. Out of 21 categories where comparisons of male and female earnings can be made, females from 1991-1996 had either earned more on average than males or had closed the earnings gap in 11 categories.<sup>17</sup>

Table 3.8.4 shows that there is a larger discrepancy in wages from 1991-1996 for those with postgraduate degrees. In 1991 the earnings gap was \$878. By 1996 the gap had risen considerably to \$9,359. Given that only 138 people were used to obtain these comparisons, there were 3086 people who obtained some type of postgraduate qualification in 1990, this means that 4.4 percent of the total postgraduate graduate population for that year was surveyed. Cox and Pollack conceded that "*samples here are very small and should be treated with caution*" (p. 18). Also, Table 2.8.1 showed that whilst males and females are reasonably similar in terms of numbers who enrolled in postgraduate diplomas, Bachelors (Honours) and Bachelors Honours programmes; Masters and especially doctorate degrees were dominated by males. Of 138 people surveyed, a higher average wage level achieved by males could be explained by a

---

<sup>17</sup> The occupation of forestry has been excluded as no females were surveyed in this occupation, thus making comparisons impossible.

higher fraction of the same leaving university with higher level postgraduate degrees. This is due to the fact that people with higher level graduate degrees would have a higher likelihood of increasing their wage increment over a shorter time period. Thus, affecting the level of wage difference between the genders. However, the survey does not supply enough detailed information, whether this may be a contributing factor for the difference in wages between the genders.

Table 3.8.4: Average Salary Comparisons for Postgraduates in New Zealand, 1991 and 1996.

	No. M or F	Gender	Salary 1991\$	Female % of Male	Salary 1996\$	Female % of Male	% increase 91-96	Overall % increase
Bio Sciences	6	F	26666	82.7	39346	79.9	147.6	150.4
	10	M	32258		49270		152.7	
Commerce	11	F	44807	100.7	67041	82.8	149.6	165.7
	23	M	44513		80995		182	
Education	9	F	36000	80.3	42344	69.8	117.6	127.4
	7	M	44857		60644		135.2	
Engineering	1	F	40000	95.6	48000	92.7	120	121.9
	8	M	41862		51774		123.7	
Humanities	4	F	30925	120.7	43125	105.2	139.5	148.8
	9	M	25611		41000		160.1	
Phys Sciences	7	F	34326	110.4	45200	91.3	131.7	144.8
	8	M	31101		49513		159.2	
Social Sciences	23	F	31449	104.4	40046	69.7	127.3	158.3
	12	M	30116		57415		190.6	
Total graduates	138	61 F	34882	97.5	46443	83.2	133.1	144.7
	77	M	35760		55802		156	

Source: Adapted from Figure 5.1.3 (Cox and Pollock, 1997).

The median age of the people surveyed was 28 along with many older respondents in their thirties and forties (ibid., p. 6). As stated above, considering that the median age of all mothers giving birth was 28.8 in 1996, for some of the people surveyed, participation in the work force would no doubt be interrupted by the responsibilities of parenthood. Indeed, of the 15.9 percent of those surveyed who became parents, 69 percent of females took parental leave whilst only 18 percent of males took leave for parental duties. The amount of actual time taken as parental leave by the genders contrasted sharply. The survey found nearly 83 percent of females took parental leave of at least 3 months, yet just over 86 percent of males took 2 or less months off for such duties (ibid., p. 33). As Cox and Pollack concede “*Such consequent gender differences in employment presence will go a long way to explain the equally vivid salary differentials*” (p. 33). Further, the comments regarding how children affected

careers that were stated in the appendix centred on the choice between family and work. Also, those that did continue to work often only participated at a part-time level, or had to reduce the number of hours worked. The few male comments did stress the hardship in returning to work but some also noted the need to find adequate employment that meant a focus on pay so that it was possible to financially support additions to the family.

A more comprehensive study into the earnings of new graduates is the annual university graduate destination report. This compares the earnings of graduates approximately 6 months after completion of their degree. As participation for the report was compulsory up until 1994, it provides a more extensive and realistic account of earnings soon after graduates have entered the work force. Given the wide and changing nature of university courses available, Table 3.8.5 displays the female/male ratio of earnings for 8 courses that students had predominantly entered into during 1975, 1980, 1985, 1990 and 1993. Although most of the earnings ratios over the 18-year period show no consistent upward trend, overall, female earnings in comparison to male earnings have made good progress between 1975-1993. The exceptions being BBS, BSc and BVSc degrees which dropped considerably from 1975 to 1993. However, whilst the earnings ratio of 0.56 for the BTech degree was the lowest in 1975, this improved greatly to 0.84 by 1993. Also, whilst the BA (social science) degree had the second lowest ratio of 0.66 in 1975, it became the highest ratio in 1993 at 1.14.

Table 3.8.5: Female/Male Earnings Ratio for Recent Graduates in New Zealand, 1975, 1980, 1985, 1990 and 1993.

Degree Course	1975	1980	1985	1990	1993
BagrSci	n.a	0.97	0.95	n.a	0.93
BBS	1.014	0.86	0.88	0.88	0.87
Bed	0.71	0.85	0.93	0.89	0.84
Btech	0.79	0.94	0.91	0.99	1.04
BA (Humanities)	0.56	n.a	1.14	0.88	0.84
BSc	0.87	0.84	0.83	0.79	0.74
BA (Social Sciences)	0.66	1.11	0.85	0.88	1.14
BVSc	1.15	0.84	0.94	0.87	0.96

Source: New Zealand Vice Chancellors Committee, 1975-1993.

In 1996, the annual university graduate destination report changed its classification of courses. Table 3.8.6 shows the average and median female/male earnings ratio for 1996 and 1997. What is interesting to note is that in 1997, the earnings ratio for mathematics and information sciences is exactly 1.0 which puts into question the concerns of females not entering mathematics and science based programs that was highlighted in Section 2.3.1 in Chapter 2. Also, in most instances, if the mean value were used for either 1996 or 1997, females would be seen to be worse off as the median ratio seems to be higher than for the mean ratio. The higher median values could be attributable to a larger number of males in the very high income brackets and/or a larger number of females in the very low income brackets. Again, caution has to be taken when deciding on statistics to use when comparing gender performance.

Table 3.8.6: Female/Male Earnings Ratio for Recent Graduates in New Zealand, 1996 and 1997.

Aggregate Field of Study	1996	1997	1996	1997
	Average	Average	Median	Median
Architecture/Building/Planning/Surveying	0.89	0.91	0.93	1.03
Biological Sciences	0.94	0.89	1.00	0.90
Commerce/Business	0.74	0.82	0.80	0.80
Health	0.72	0.76	0.76	0.80
Humanities	0.90	0.89	0.98	0.92
Mathematics and Information Sciences	1.02	1.00	0.96	0.92
Physical Sciences	0.95	0.81	0.95	0.87
Social and Behavioural Sciences	0.91	0.94	0.92	0.97
Technology and Engineering	0.93	0.92	0.96	0.96
Visual and Performing Arts	1.23	0.83	1.10	1.03

Source: New Zealand Vice Chancellors Committee, 1996 and 1997.

### 3.9 Some Conclusions

The first part of this chapter looked at the participation of the genders in various occupations. At an aggregated level, data concerning occupations show that females have made strong inroads into 'male occupations' whilst 'female occupations' have generally remained female dominated. Also, the changing face of the New Zealand labour market has seen a greater demand for predominantly 'female occupations', whilst 'male occupations' have been less in demand. When indices were employed for both horizontal and vertical segregation, the last 10-15 years have seen a strong improvement for females. We have to reiterate though that a fair level of segregation

at both levels does exist. However, it would be incorrect to assume that all occupations should generally comprise of an equal share of both genders due to the inherent differences and tastes of males and females. As long as females have a preference for such areas as clerical work, nursing and teaching, in which they are over-represented, they will inevitably be under-represented in other areas.

The second part of this chapter looked at pay differentials between the genders. Here, we can see that simple indicators of any pay differences do not provide sufficient information to determine that females are in some way being discriminated against. At a more detailed level, we have seen that females have made great progress in comparison to males through narrowing differences in the level of wages. However, like the issue of occupations, we have to be mindful over whether we would expect overall parity in wages between the genders. The issue of family responsibilities, which was touched upon in this chapter, was one solid reason why this would be unlikely to occur. Obvious differences in wages between those once involved in motherhood and those who were not clearly showed. Furthermore, along with family responsibilities, other explanations have been outlined by various studies that help refute the belief that the introduction of various policies are the answer to any closing of differences in wages between the genders. Therefore, issues of theory and policy regarding the gender wage gap are discussed in the next chapter.

## CHAPTER 4

### THE GENDER WAGE GAP: THEORY AND POLICY

#### 4.1 Introduction

Chapters 2 and 3 presented a variety of statistics concerning some primary differences in various facets of New Zealand society. Results from Chapter 2 highlighted the fact that the educational make-up of the genders has changed considerably over the last 3 decades. Generally, this has been to the benefit of females. In turn, we have seen that the positive changes for females in education at various levels have crossed over into the occupational make-up of the New Zealand labour market as shown in Chapter 3. Females have made clear strides in entering male occupations, particularly between 1986-1996. However, during the same time periods, the predominantly 'female occupations' had not experienced any significant influx of males. Obviously, one can accept that differences still exist between the genders in education, occupation and earnings. Yet, what can be misleading is the notion that any differences in these areas between the genders mean that discriminatory practices are in place. This often leads to the automatic assumption for the introduction of new or modified policies to rectify such differences. Therefore, this chapter poses 2 broad questions. Firstly, what are the theoretical reasons for differences in wages between males and females? Secondly, what further policies, if any, are required to eliminate any differences in wages between the genders?

In Section 2.8.1 of Chapter 2, it was noted that students who enrolled in a subject that was dominated by the opposite gender tended to show the characteristics of that opposing gender. Therefore, it would be logical to assume that such characteristics would also be apparent in those employed in occupations that are predominantly occupied by the opposite gender. When discussing changes to the number of males and females in various occupations, what seems to be overlooked is what the end goal should be. Proponents of the view that the gender wage gap is due to discriminatory



practices against females claim that earnings differences are linked to the segregation of the genders into various occupations. To what extent should the segregation of males and females diminish to achieve the objective of no wage differences between the genders? More importantly, would it be viable? Like educational programs, there may be a limit to the numbers who can be moved into occupations dominated by the other gender. Obviously, an upper limit in terms of numbers would vary greatly from one occupation to another. For example the goal of a 50 percent share between the genders in all occupations is unlikely to be attainable. This would mean equal numbers of males and females in the work force. Also, all occupations that were predominantly female would have to include a half share of males. Furthermore, if there are perceived barriers to females wishing to enter 'male dominated' occupations, we should also consider the possibility of barriers to males wishing to enter 'female dominated' occupations.

It was mentioned previously that many feminists view the concentration of females in particular occupations as segregation and a prime reason for their lower wages. However, there are a variety of causes of earnings differences. These can be explained under 4 main headings. The first reason, discrimination, is based on negative attitudes towards females. The next 3 reasons: human capital; parental leave and family responsibilities; and compensating differentials propose that there are no negative attitudes towards females. Instead, they focus on the general differences that exist between the genders. It is to these 4 explanations that we now turn.

#### **4.2 Causes of Differences in Earnings: Discrimination**

According to the majority of feminist literature, the primary factor causing males to earn more than females is gender-based discrimination. Males receive higher earnings than females due to the adverse treatment females experience because of their gender. However, gender roles, both positive and negative, which can lead to discrimination, are placed on males as well as females. Although there tends to be more of an emphasis on the roles of females than males which many do not consider or investigate.

Overall, Discrimination comes from various sectors and is exhibited in different forms. Albelda *et al.* (1997) outlined 3 general groups that might display some form of discrimination in the labour market: consumers; employers; and employees.

#### **4.2.1 Consumer Discrimination**

Consumer discrimination occurs when consumers refuse to buy goods and services made or sold by members of certain groups (p. 90). Albelda *et al.* noted 2 pre-existing conditions that needed to be met if consumer discrimination was to have any economic effects. The first was that consumers must know who is on the other end of the purchase. With predominantly female and male occupations, there are many occupations that provide goods or services where the workers are visible to the consumers, e.g. hairdressers, housestaff and beauticians for females; and bricklayers, plumbers and painters for males. However, the majority of the female dominated occupations are service based. Therefore, most consumers would be able to know which gender they were interacting with and may have the opportunity to discriminate. However, there may be discrimination by consumers against males who enter predominantly 'female occupations'. A consumer may view a female as the best person for the good or service provided. The second condition was that a sufficiently large group of consumers with enough buying power must have the same taste for discrimination. In New Zealand at least, examples of substantial groups of consumers collectively working together to discriminate against particular groups that sell goods or services do not appear to be prominent.

#### **4.2.2 Employer Discrimination**

Secondly, Albelda *et al.* pointed out that employers might display discriminatory practices if they employ one set of workers for lower wages than another group. Or, they may even refuse to hire a certain group of workers. The authors contended that if many employers within an industry have the same distaste for a certain group, that group's demand for labour would be low along with their wages. The results of this can be varied, from wage differentials, unemployment for the group, or even being crowded out and forced to enter other occupations. Unlike consumer discrimination,

employers are at an advantage of knowing who are producing their goods or services and with such information are in a stronger position to discriminate. However, the problem with employer discrimination as a result of unfair treatment towards a certain group is that like consumer discrimination, there has to be a concerted effort to exclude some groups from employment (p. 91). It seems doubtful whether in today's society there would be a concerted effort by a large group of employers to expel females in a job. This is especially considering the fact that most firms in New Zealand follow the requirements of Equal Employment Opportunities (EEO) legislation.

#### **4.2.3 Employee Discrimination**

Thirdly, Albelda *et al.* claimed employees might exhibit discrimination. Some employees may dislike working with other groups of employees and in turn prevent them from pursuing certain occupations. The underlying assumption with employee discrimination is that the discriminating employees must be willing to accept lower wages to make up for their lack of productivity. Therefore, the authors contended that from a profit viewpoint, there is no problem with employee discrimination. Goods and services would come into the market with the same price and quantity as they otherwise would have. However, the fact that there may be employees from other competing firms who do not discriminate may lead to a different outcome. Albelda *et al.* believed that employee discrimination could be wiped out through the actions of competitive markets by the creation of segregated workplaces. Thus equalising wages. However, there is doubt whether any country has truly competitive markets; New Zealand being no exception. It seems increasingly unrealistic in the current labour market to imagine employees accepting lower wages, so that they could avoid working with certain groups.

The authors pointed out that inefficiency through employer discrimination would most likely occur through skill monopolies. Certain industries may refuse to train particular individuals. Furthermore, if there were already few of the group discriminated against currently working in the industry, inefficiency would result. In terms of a first stage effect, those who are not being discriminated against in the

industry would not suffer from lower wages, as they are the only individuals available to be employed for the particular job. Beyond that, it would be difficult to predict the final outcome on the market of such discriminatory practices. Also, employer discrimination relies on the fact that skill monopolies actually exist (pp. 91-2). Chapter 2 showed that females are increasingly enrolling into various subjects at secondary school and courses at a tertiary level. Also, examples of sufficient numbers of people unwilling to instruct or teach certain groups would be difficult to identify. Overall, some employee discrimination may be evident in particular cases. Nevertheless, it is unlikely that widespread instances seriously hamper opportunities for certain groups in specific occupations.

#### **4.2.4 Statistical Discrimination**

Apart from discrimination concerning consumers, employers and employees, Albelda *et al.* noted that attention has also been directed at the existence of statistical discrimination. Rational employers will utilise all forms of relevant information when deciding on the best person to employ. This may lead to generalisations that may disadvantage certain groups. For employers to make informed decisions, they may assess the employment histories of similarly skilled males and females that the firm has hired previously. Statistical discrimination can come in two forms. One way is to determine that on average, one group is more productive than another group (pp. 95-6). A common example is that some employer records may show previous female employees leaving work in their late twenties to raise children. As the prospective female employee may also leave the firm for the same reasons, the employer may be more inclined to choose a male for the position. This is because the male is viewed, statistically at least, as being less likely to leave for family responsibilities and therefore be more productive for the firm. Yet, statistical discrimination can disadvantage both males and females. Just as some employers may choose a male over a female with the same skills and experience for a position due to the possibility of her leaving the work force to raise children, such statistics may disadvantage males. A female may be considered suitable for a part-time service job with few prospects as she may want limited hours and be prepared to stay long term.

The other form of statistical discrimination Albelda *et al.* alluded to is when employers have less information about one group of prospective employees (pp. 95-6). A common example involving females is the fact that employers are unable to assess the competency of females who have re-entered the work force after a period of absence from the work force. Therefore, the male applicant's up to date employment history may provide an advantage over the female applicant, even though she may be more competent at the job than he is. However, a lack of information on prospective employees may mean less negative information about an individual, so an unknown element may be preferred. Also, females may find it easier to withdraw from and re-enter the work force more readily than males. This is because a year out of the work force might be viewed less detrimentally than a year being unemployed. Therefore, there are a range of issues about the amount and accuracy of information and risks in the employment decision. Furthermore, employees may also engage in statistical discrimination. Prospective employees may only seek firms that are rated as good employers or are entered in the Fortune 500 listing. Smaller firms may provide better wages and working conditions but the prospective employee does not have sufficient information available to determine this.

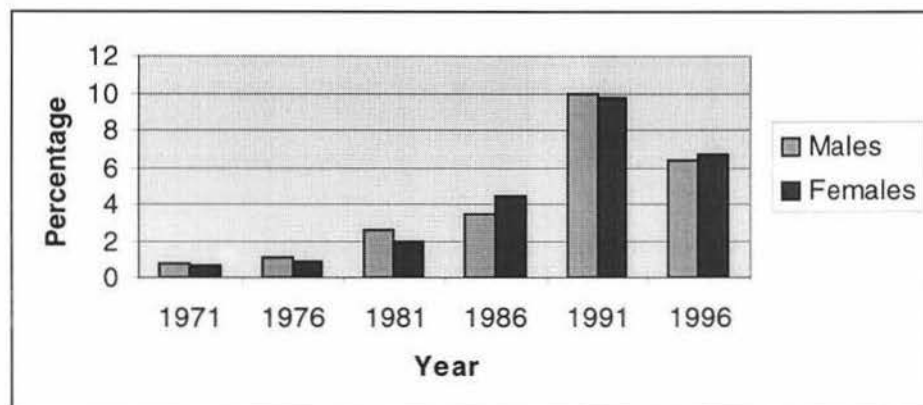
#### **4.2.5 Outcomes of Discrimination**

Further, Albelda *et al.* noted 3 general outcomes that may occur from the inefficiency of discrimination in labour markets: lower wages; un- or underemployment; and occupational crowding (pp. 88-9). Relating these outcomes to discrimination towards the female, lower wages occur when the options for the worker are limited. The employer can then exploit this opportunity by paying the prospective worker less for a job that they know the worker is interested in doing. However, this relies on the employer having a vast amount of information on the occupational interests of the applicant or general information on the applicant group.

Unemployment occurs when a worker is unable to obtain a job either in the industry the person wishes to work in or indeed in any other industry. Yet, various definitions of the unemployment rate along with a plethora of reasons why an individual is unemployed makes it difficult to conclude that females have been purposely

unemployed due to discrimination and becomes a type of discouraged worker. If one were to solely use the census unemployment rates for males and females that is shown in Figure 4.2.1, it reveals that the difference between the unemployment rate for the genders has been minimal. Therefore, one may conclude that on this basis alone, discrimination may affect males to a similar degree as females when discussing unemployment.

Figure 4.2.1: Unemployment Rate for Males and Females in New Zealand, 1971, 1976, 1981, 1986, 1991 and 1996.



Source: Statistics New Zealand, *New Zealand Census of Population and Dwellings, 1971-1996*.

Often, compromises have to be made in terms of hours employed. This may result in the female worker experiencing underemployment, whereby she works part-time but would rather work in a full-time position. Therefore, she is in an occupation where her skills, abilities or preferred working hours are not completely utilised. In New Zealand at least, it is now males who are increasingly finding themselves entering part-time work, due to the absence of sufficient full-time occupations for their chosen occupation.

Occupational crowding occurs when women are intentionally segregated into particular occupations. It is argued that females are corralled into low-paid work, which are often described as '*pink ghettos*' (Loney, 1990, p. 2). Those who believe discrimination towards females exists in the labour market contest that this crowding may be involuntary and inefficient. In this situation, as females are unable to attain promotions and are repeatedly turned down for jobs in other industries, the supply of females in particular occupations increases. This may lead to a fall in wages.

However, data from Sections 3.5 and 3.6 in Chapter 3 showed that the level of horizontal and vertical segregation has continued to decline in New Zealand. Therefore, many females are attaining jobs in 'male occupations' and are receiving promotions in greater numbers.

Overall, various forms of discrimination as an explanation for differences in earnings between the genders may be a dubious answer to why females are concentrated in few occupations, which tend to pay lower wages. Too many conditions often need to be met for the notion of discrimination to provide a sufficient explanation of earnings differences. The basis for discrimination seems to depend heavily on the collective acts of consumers, employers and employees. Also, discrimination against females can equally be directed against males. There are many conditions required to be met for discrimination to occur. Also, the likelihood of the factors that contribute toward discrimination seems increasingly questionable in the current labour market. Therefore, other explanations need and have been put forward in explaining earnings differences.

One such alternative explanation relates to the issue of occupational crowding which was discussed above. Borjas (1996) claimed that occupational crowding may not be borne out of "*discrimination by male employers, but may simply be the result of a social climate in which young women are taught that some occupations "are not for girls," and are channelled into more "appropriate" jobs*" (pp. 349-50). The same situation applies with males who may be taught that there are particular occupations that they should and should not enter. This relates to the wider issue of human capital theory whereby it provides a model for a supply-side explanation of why women rationally choose certain occupations and avoid others. Hence, it is important to consider human capital theory as an explanation of differences in earnings between the genders.

#### **4.3 Causes of Differences in Earnings: Human Capital**

All workers enter the labour market with a unique set of abilities and acquired skills, which is commonly referred to as human capital. Generally, the more human capital

an individual acquires, the higher paying range of occupations the individual can enter. Differences in the type of human capital have been one of the explanations put forward for differences in the wage levels of males and females. Borjas (1996) summed up this view by stating that *“Although there is still disagreement over the extent to which the human capital story explains the gender wage gap, it is now widely accepted that differences in human capital accumulation between man and women do matter”* (p. 349).

Generally, there are two types of human capital: general and specific human capital. General human capital relates to the type of capital that once acquired, is equally useful in all other occupations. Specific human capital relates to the type of capital that is valuable only to the firm that the worker is involved with and cannot be transferred to other firms. The mix of human capital often differs between occupations. Also, males and females tend to have different mixes of general and specific human capital. This in turn may generate different rates of return on their stocks of human capital.

#### **4.3.1 Human Capital: Formal Education**

One of the most common forms of human capital is formal education. A general misconception outlined in Chapter 1 was that males attained more formal education than females. Currently, females in general tend to attain higher levels of general human capital than males, though this has only developed during this decade. Moreover, human capital theory helps explain the positive relationship between education and earnings that has shown to be more beneficial to females. Jacobsen (1998) highlighted studies into the median income ratio for college graduates to high school graduates in the U.S. for the ages 25-34 between 1967-1995. The author concluded that females received a greater relative premium than their male counterparts during this time period. However, Jacobsen conceded that such differences might be due to innate productivity differences between the genders, along with the relative supply and demand of tertiary graduates (p. 244).



Statistics New Zealand (1999) noted that the difference between the median earnings of males and females was the most pronounced for those holding a tertiary degree. This difference favoured males. Therefore, gains from tertiary education would be more for males than females. The median income for those females with either a bachelor degree or higher in full-time employment was \$34,600, compared with \$20,300 for those females without qualifications. Interestingly, the median income in this case for full-time employed females was only 71.1 percent of that of males in 1996 (*ibid.*, p. 78). However, this is not surprising considering that until recently, males were more inclined to attain some type of university degree. Therefore, there would be a larger number of males who would have more years of work experience than females, and thus be able to command higher wages. More importantly was the fact that the median income ratio was considerably higher than the ratio in 1991 which stood at 58.2 percent (*ibid.*, p. 78).

#### **4.3.2 Human Capital: Occupational Training**

Furthermore, as males are generally involved in occupations that require more specific capital training, and females are more inclined to be in occupations that involve more general capital training, this may continue to disadvantage males. As females tend to have more general human capital, their skills are more transferable to a wider range of occupations and in many cases do not need specific training that many males do in a new job. It was noted in Section 3.7 of Chapter 3 that for many males involved in the industrial sector, their specialist training might have hindered them from moving horizontally into other occupations. This has been the experience of many male workers in the New Zealand economy during the 1990's, where unemployment has affected those workers who have been involved in the industrial sector.

Also, Table 3.1.1 in Section 3.1 of Chapter 3 showed that more females were involved in part-time employment than males. In turn, the amount of human capital that workers would attain in either full-time or part-time employment would differ. As part-time employees work fewer hours they would acquire less work experience. Therefore, less human capital may be obtained. However, continually larger numbers

of males entering part-time activities, as has been evident in New Zealand over the last decade, may lead to many males and females having similar levels of human capital.

A further way in which an individual can acquire human capital through on-the-job training is a formal apprenticeship program or an informal situation set up by the employer. Changing working conditions in recent years has meant that formal apprenticeships are not provided in the same numbers as they were over the previous decades. Currently, it is more common for some type of ongoing, informal training process to be available for new employees.

Jacobsen (1998) summed up the effect of on-the-job training by stating that '*The prediction is that jobs that provide training will pay less than jobs that do not, all else equal, because part of the value of the job is the value of the human capital which accrues to the worker*' (p. 245). As males are more involved with acquiring specific human capital than females, a large proportion of males may receive a lower wage level than females in similar positions. However, the male receiving low pay is only a short-term phenomenon. Over time, wages become steeper for those occupations that require specific human capital training. Often, a premium can be paid which does not have to be much over what is paid elsewhere to entice the worker to stay. This is because employers may want the worker to stay so that the employer can receive the return on their investment in human capital. However, the worker who acquired specific human capital would not find his skills transferable with most jobs the chances of moving onto another job would be less than those with general human capital skills. Therefore, those who received only general human capital skills may be more likely to leave than those who received specialist training. Obviously, an employer can average out their wage costs by paying wages under their marginal product during training and then paying wages above their previous marginal product after training has been completed. Therefore, the firm will make a profit on workers who decide to leave straight after their training ends. Also, it gives the worker an incentive to remain with the firm because if the worker left the other firm would pay no more than the marginal product. Whilst the marginal product is increasing over time, the pay rate is rising more steeply, at least directly after the training years. Also,

receiving on-the-job training along with formal education provides the opportunity for workers to be in a better position to turn on-the-job experience into human capital, or to enter into further occupations. Therefore, the additional human capital acquired leads to higher wages over the profile of the job (ibid., pp. 245-6).

#### 4.3.3 Interruptions to Acquisition of Human Capital

Clearly, the different types of capital that both genders obtain are related to the priorities that they place in and outside of the workplace. Jacobsen summarised this point by noting that males were more likely to invest in human capital that had a high return in wages but had little increase in satisfaction. One example could be the role of school principal which have predominantly been a male position; whereby the male decides to take up this role which provides him with a higher wage yet leads to more responsibility, longer hours of work and more stress. Females, on the other hand, were more likely to have invested in human capital that had a high non-market return and that increased satisfaction with time spent in market work. Whilst males and females invest in different forms of human capital, many females also have a period where they do not acquire human capital that is generally recognised. These are generally times involving child rearing. Discontinuity in female's involvement in the labour market is a strong justification for differences in wages between the genders. This explanation is often referred to as the Mincer-Polachek Hypothesis.<sup>18</sup>

Borjas (1996) noted two reasons why the Mincer-Polachek hypothesis suggested that the interruption in the female labour supply lead to a difference in the wage level between the genders. Firstly, men are able to acquire more human capital, as they generally do not leave the work force for other responsibilities to the same extent as females. Secondly, as the female spends time raising children, her skills tend to depreciate (p. 348). Various studies have focussed on whether wages recover to the extent of being level with those who did not exit the work force for a period of time. Mincer and Ofek (1982) hypothesised that a 'rebound' effect would occur in terms of earnings for females re-entering the work-force. However, others disagree.

---

<sup>18</sup> Mincer and Polachek, '*Family Investments in Human Capital: Earnings of Women*'.

Stratton (1995) found that after 3 years from re-entering the work force, females who did exit the work force for a period of time did not experience any significant wage depreciation. However, females who found that their wages were lower than expected were more likely to re-exit the work force. Thus, only those who were high-earners stayed in the work force. Mason (1998) found from a survey of New Zealand employers that there was generally a positive attitude towards re-entering females. However, many of these employers recognised the skills acquired in the home and community but failed to relate these abilities obtained to their relevance in the work place. Jacobsen and Levin (1995) concluded that whilst there was some evidence of the 'rebound' theory, the wages of females who took leave from work never really caught up to the wages of females who never left the work-force. The authors found that at a 10 percent significance level, females who took leave from the work-force around 20 years earlier still earned between 5-7 percent less than those females who had comparable levels of experience, and did not take leave from the labour market (p. 18). Furthermore, the authors argued that the discrepancy in wages between those females who had previously left the work-force for other commitments and those who remained throughout, was that employers considered periods out of the work-force as a signal of less dedication to the job.

In the U.S., Shapiro and Mott (1994) found that females with a strong attachment to paid work, and who managed to retain their ties to employment, minimised the effects of being away from the work-force. In Britain, Waldfogel (1995) provided results for females re-entering the work force that returned to their original employers after childbirth and found they earned higher wages than other mothers did. The authors argued that this may have been due to such females being perceived as committed and were therefore more likely to advance in the labour market. Thus, it may have more to do with the attitude of the employee towards their occupation, rather than discriminatory practises towards females by their employers.

The general belief is that the costs of parental leave fall more heavily on the female. Others disagree. Stafford and Sundström (1994) found that after a year out of paid work, parental leave resulted in a cost of earnings of 1.7 percent for females and 5.2

---

<sup>18</sup> Mincer and Polachek, *'Family Investments in Human Capital: Earnings of Women'*.

percent for males in the years immediately following this leave (Galtry and Callister, 1995, p. 42). Also, Sandqvist (1987) found that white-collar fathers experienced their parental leave more positively than blue-collar fathers; white-collar males overall had a more liberal view to parental leave than blue-collar males and were therefore more willing to take it (Galtry and Callister, 1995, p. 42).

Overall, there are various studies into the belief that human capital differences are one of the reasons why there are differences in the earnings between the genders. In terms of formal education, males have traditionally acquired higher qualifications than females at both a secondary and tertiary level. This situation has reversed but this has only occurred during the last decade. Therefore, for the majority of the current work force, males have better qualifications than females. In terms of on-the-job-training, various studies found that males were more likely than females to acquire some form of training such as apprenticeships. Section 2.8.1 in Chapter 2 highlighted the findings of the NLS (Goldin, 1990) and Shaw and Shapiro (1987). This compared the actual labour force attachment of older females with younger females preferences for future labour force participation. The studies found that a large percentage of females underestimated the time they would remain in the labour force. Therefore, many females would also have under-invested in not only formal education but also on-the-job training.

#### **4.3.4 Competing Forms of Human Capital in the Work Place: Baragwanath Interview**

Given the differences in the level of human capital that males and females generally attain, one would expect that in many instances, the male would be preferred in certain positions. This is due to the fact that human capital provides a measure of the knowledge of each potential employee. Recently however, the use of qualifications and experience have been down-played somewhat in favour of a very subjective means of job selection by asserting the level of potential a prospective employee may have. Here, the New Zealand legal profession provides a glaring example of the extreme and potentially negative and discriminatory effects that this may have on males applying for such positions.

During a radio interview for 'Top O' the Morning' with Brian Edwards (1998), president of the New Zealand Law Commission, David Baragwanath QC indicated that the choice of female students to enter the legal profession was often positively correlated to the appointment of a female in a top academic position. There is no doubting the benefit in terms of female students being encouraged to pursue a career in any occupation if they observe other females advancing to the highest levels in their profession. What are disputable are the grounds on which they obtain the job. Baragwanath indicated that what needed to be taken into consideration when appointing top academic positions was not only the interests of the student but also the interests of the wider community. He argued the decision on who to appoint should also include the potential that the prospective employee portrayed. Baragwanath cited an example of two people competing for a position whereby the male had years of work experience whilst the female did not. However, the female had the capacity to perform equally to the male. In terms of society's interests, he asserted that preference should go towards the female receiving the job.

Instead of choosing an established form of criterion for appointing a person, people such as Baragwanath have advocated for a subjective approach where the choice of an employee may come down to a 'feeling' that the employer may get from the interview. This is problematic if the employer finds him-herself incorrect about the new employee's potential. Obviously, this is a strong indication that reverse discrimination would be evident if such criteria were used. Thus, from society's viewpoint, we would be no better off.

The idea that human capital can depreciate underscores the importance of continuity in the work history of an employee. Often, employers do not realise the possible gains that they can achieve by hiring employees who have undergone a variety of experiences, both inside and outside the working environment. Such outside experiences for females can involve family responsibilities and child-care. Discontinuity in their working life due to these responsibilities goes a long way towards explaining the levels of human capital both genders attain. Also, as both genders may take time out of the work force for parental leave, this issue requires

attention and discussion. Therefore, issues of parental leave and family responsibilities are explored below.

#### **4.4 Cause of Differences in Earnings: Parental Leave and Family Responsibilities**

Parental leave and family responsibilities, as one cause of the difference in earnings between the genders, encompasses a broad range of issues that need to be discussed. Females often have to choose between a career to pursue or a child to care for. Schwartz (1989) was the first to conclude that there were two categories of female employees; one that was the 'career-primary' female and the other that was the 'career-and-family' female. She argued that they should be treated differently by their firm. Certainly, there would be some females who make the decision to remain in the workforce for a specific period of time, whilst others have decided to remain for a lengthy period of time. However, there may be problems in classifying female workers into such categories. For example, some female workers may decide to change their focus due to outside factors in the future. Nevertheless, the author pointed out that, overall, the cost of employing females in management would be greater than the cost of employing males. She documented that "*This is a jarring statement, partly because it is true, but mostly because it is something people are reluctant to talk about*" (p. 65). This seems to be a problem that is endemic when gender issues involving occupations and earnings are discussed. Also, whilst females may leave their job to raise a family, some males may also decide to remain in the workforce for a specific period of time. Males may leave their jobs for reasons such as travel, education or simply a change of occupation.

Hyman (1994) claimed that females experienced a 'double burden' of paid work and unpaid work whilst males only had the burden of paid work. Yet, Birks (1995) noted that there was no attempt at quantifying such a generalisation as "*the measurement of relative contributions is complex*" (p. 106). Habgood (1992) also contended that the idea of sharing such responsibilities was very subjective. She asked whether sharing meant 50:50 of everything. Also, whether it was one, some, or all attributes such as time, effort and skill that lead to equivalence in the various tasks performed by males and females.

The option of part-time or full-time work is one possible avenue in which to examine choices males and females make between paid and unpaid work. Females with children often prefer part-time work as a way of looking after their offspring and remaining in the work force. Part-time employment may be viewed by some as an inferior alternative to full-time work, mainly from a financial viewpoint. This may be correct in many instances, but the option of part-time work provides females with greater ability to spend time on other responsibilities than work. Gendall (1997) conducted a survey in which one of the questions was "*Suppose you could decide on your work situation at present. Which of the following would you prefer?*" From a valid sample number of 528 males and 598 females, it was found that 76.9 percent of males preferred a full-time job compared with only 45.2 percent of females. However, regarding part-time work, only 15.7 percent of males that preferred part-time work compared with 41.3 percent of females. Also, more females preferred to work less than ten hours per week or no paid job at all (13.6 percent for females compared with 7.4 percent for males). Not only does this data go against the notion that females are pushed into part-time work, but it also illustrates that the priorities of females seem to be very different than males. It appears that many females have other responsibilities that they are willing to spend time on. Also, there is the question of whether similar numbers of males in comparison with females are 'allowed' the part-time option of work.

#### **4.4.1 Family Responsibilities: Gendall (1997) Survey**

There is no doubting that unpaid work is an important part to society. However, to generalise that it is females who suffer from the notion of a 'double-burden' is misleading. Just because more males want to work longer hours does not mean that this is an option they prefer to domestic duties. For many males, working longer hours is a necessity rather than an option. Gendall found little difference between the genders in terms of those wanting to spend more time on household and family responsibilities. They asked the question "*If you could change the amount of time you spend doing household work, would you spend much more/a bit more/same/a bit less/much less time or can't choose/doesn't apply*". From a sample number of 530



males and 593 females, only 12.3 percent of males and 10.9 percent of females wanted 'much more time' and 'a bit more time' spent on household activities. However, around 65 percent of males and females wanted 'much more time' and 'a bit more time' spent with their family.

This raises the issue of what studies should focus on, but often do not, when evaluating data. Kirkwood (1998) claimed that "*What may be of more interest here is not further quantification of the differences in hours worked between the sexes but rather attempts to explore the reasons why women work less hours than men in all occupations*" (p. 10). Emphasis has been placed so heavily on the fact that females are perceived to suffer from a 'double-burden' that little attention has been given to male involvement in paid and unpaid work. Therefore, it is important to consider why males work more hours instead of why females work less (ibid, p. 15). One possible answer is the view that the male is expected to be the main breadwinner in the household. Generally, the majority of societies have viewed the male as the main earner in a marriage or relationship. There is no doubt that this view is changing considerably in recent decades, but for many males this presents a dilemma. Many would wish to spend more time looking after and being with their children but are faced with the attitude that providing monetary support is their main contribution.

That the male is required to be the main monetary provider for a family leads to a wider problem. It is interesting that many feminists are trying to rid society of many female stereotypes, yet they often promote many themselves. In other words, objecting to different treatment between males and females whilst also creating differences between the genders. A noticeable stereotype emerging in relation to the description of child-care is the assumption that only mothers wish to raise and care for the child. If complete equality between the genders in all areas of society is an objective, then equality should also mean that males have the same opportunity concerning parental leave. Yet, in many instances the father is overlooked. This may reinforce the impression that it is females who are labelled as the primary parent. Certainly, if we are going to take the view of equality for all, males should have just as much right as females concerning parental leave.

Galtry and Callister (1995) pointed out that in New Zealand “*equality issues in the workplace have not been in general, strongly connected to debates about equalities in the home*” (p. 48). While in most societies there has been considerable focus on encouraging women to seek equality with men in paid work, there has been little focus on encouraging equality in unpaid work, particularly caring for babies. Habgood (1992) noted that there appeared to be pressures on men in the workplace not to be a caring man. Males were not expected to show any feelings or emotions, which Galtry and Callister (1995) concluded would work against males taking parental leave in New Zealand. Some countries, such as Finland that had successfully encompassed males in their parental leave policies. However, other countries such as Sweden have found such policies relatively unsuccessful. Whether New Zealand embraces the right of males to have parental leave on the same scale as females is questionable, given the attitudes outlined above. The effectiveness of any policies introduced may vary across countries, given that the make-up of society in each country is often very different. Therefore, caution needs to be taken with issues such as equality, as an effective policy in one country may create problems in another.

A misconception that has often occurred has been that parental leave is viewed as simply being related to maternity leave. Galtry and Callister (1995) found that in New Zealand, fathers’ hours of paid work varied little by the age of the child. For Australia, Bittman (1991) found that hours spent by fathers in paid employment were the longest when the children were very young. However, in Sweden Näsman (1990) found those males with very young children worked the shortest hours and often took shift work in order to spend more time with their children (Galtry and Callister, 1995, p. 105). Notwithstanding, the European Commission (1994) found that the most important factor influencing fathers taking up parental leave seems to be having a highly educated partner (Galtry and Callister, 1995, p. 42). As Section 2.8 in Chapter 2 showed ever increasing numbers of females obtaining some type of tertiary qualification, it appears increasingly important that the male perspective in parental leave and responsibility is given consideration.

#### 4.4.2 Family Responsibilities: Wilson (1999) Article

Specifically looking at the New Zealand labour market, the debate over parental leave and responsibilities and females in the work place has provided some interesting viewpoints, it has highlighted the fact that family responsibilities encompass a broader range of issues. Wilson (1999) contended that there was still a disparity between the number of male and female partners in the law profession. In terms of an explanation, Wilson highlighted a differing perspective on the argument that females do not seek top positions and heavy workloads, often due to the perception of their inability to cope with such pressures. She summed up the findings from a study in the U.S. that found males and females had different attitudes to their work in top business professions.<sup>19</sup> The study discovered that many female executives often left their jobs so that they were able to have greater control over their work and did not want their identities to only be defined by their achievements. As Wilson stated "*In other words they had decided that the corporate structure and values had been dehumanising and that their priorities had changed. They had proved they could do the job but the cost was too high*" (p. 5). Wilson noted that of the 414 partners in New Zealand law firms who were female, around one-third were in a solo partnership, compared with 28 percent for males. Also, 52 percent of female partners were in firms with one or two partners compared with 43 percent for males (p. 4).

Certainly, some occupations involve a high workload which in turn requires workers to put in a high number of hours each day; the legal profession being one of them. In turn, a high workload often places a strain on such workers, particularly for mothers who face the so called 'double-burden' of work commitments and outside commitments, such as family responsibilities which Hyman (1994) alluded to before. Yet, fathers also have the same 'double-burden'. In many instances, fathers tend to give priority to work instead of family commitments due to a various reasons, such as the father viewing himself as the main provider or his employer being less understanding of their family commitments. Obviously, like males, the issue of the 'double-burden' poses a dilemma for mothers. Not only are mothers expected to provide sufficient time and care for her children but also to put in sufficient work-

---

<sup>19</sup> McKenna, E. P. (1997), When Work Doesn't Work Anymore.

time. However, if too much emphasis is placed on work, others may see her as not living up to her responsibilities as a mother. Notably, the same conclusion may be reached with fathers who may be seen as not living up to his responsibilities by not providing sufficient earnings for his family. Often, for mothers a compromise is found through part-time work.

However, Wilson (1999) asserted that as the work force was becoming more flexible, part-time and casual employees had become more common than full-time permanent staff. This in turn would decrease the employment security of the worker as Wilson asserted part-time work to be less secure than full-time work. (p. 3). As mothers were likely to take up such positions given their added responsibility of child-rearing, Wilson believed that larger numbers of females would be in a more tenuous working position than their male counterparts. Therefore, no matter what females do, they can still be viewed as being disadvantaged. It is questionable whether it is detrimental to those females in the legal profession who take on part-time work. As stated above, part-time work provides the ideal opportunity for those females who wish to spend time looking after their children but wish to continue their association with the work force. Thus, such females are able to avoid discontinuity in the labour market that may impede any advancement in their jobs.

Further to the issues of corporate structure and family responsibilities, Wilson claimed that females had to adjust to the male notion of what was required to succeed in the legal profession. Wilson pointed out that *"To participate fully and achieve within an existing system, women must don the cloak of male characteristics and adjust to the norms, practices and policies of the male experience that invade every crevice of the legal system and legal profession"* (p. 2). Concerning such a statement, one wonders whether males in predominantly 'female occupations' have to don the cloak of female characteristics. Furthermore, she added that *"If women want to succeed within the existing system they must become more of a "man" than the men with whom they work, or they must absorb the stress and make the compromises of the outsider living the life of an insider"* (p. 2). In a sense, the author saw the legal profession embracing the ideals of a 'man's world' and had failed to embrace the notion of non-discriminatory practices and EEO in favour of females. Without question, some females with family responsibilities may find it difficult to contribute

the same amount of effort into their work as their male counterparts. However, what seems dubious is that because males seem to be more committed to work longer hours, sacrifice more with other commitments and in turn become more competitive than females in obtaining promotions; that this should be seen as some type of defacto discrimination against females, where the hefty requirements of the profession proceeds to exclude mothers from competing equally with males. Often, social pressures are felt by males as well as females through conforming to the notion that they must contribute outside of the home by providing sufficient income for the family. The same situation can apply with females who 'have to' accept responsibilities elsewhere such as in the home.

Furthermore, if policies were introduced for females with outside commitments to enhance their chances of advancement in their careers, would this be under the auspices of equality or special consideration? This leads to the question of whether people engaging female lawyers in such a situation would be less well served than those represented by male and female lawyers without outside commitments. One has to take into account the female workers who choose to forgo motherhood. These females often indicate that they are willing to put in the same number of hours and level of commitment as men, hence earning their partnership under the same standards as their male colleagues. Therefore, we have to ask whether it be fair to concede advantages to those who choose motherhood, and a career, in obtaining partnerships to those who choose to concentrate only on their career. From a balanced viewpoint, many would answer no.

So far, human capital theory and issues of parental leave and family responsibilities help explain part of the reason for differences in the wages of males and females. Whilst formal education and on-the-job training varies between the genders, the types of occupations that males and females enter also vary. Specifically, it is often the conditions of an occupation that form a platform for the level of wages offered in a specific occupation. Higher wages are related to shunned occupations and lower wages for agreeable occupations. We shall now see that it is typically males who are involved in the former and females in the later when issues of compensating differentials are dealt with.

#### **4.5 Causes of Differences in Earnings: Compensating Differentials**

The difference between a higher wage in the dangerous or less desirable occupations and the lower wage in an occupation that is pleasant or has a good working environment is the compensating differential. Though Chapter 3 outlined that differences in occupations males and females typically enter into are becoming more blurred by each passing decade, there is still a marked difference when we compare the general conditions that males face in their working environment, compared with females. Filer (1985) found that for job characteristics, men rated jobs higher in terms of variety, autonomy, challenge, and applicability of skills. Also, their jobs were considered more hazardous and had a higher rate of job-related illness. Females preferred jobs that were higher in role clarity and had less physical effort, more supervision, better relations with co-workers, and more freedom to take time off work.

In many instances, males tend to have the most hazardous and unsanitary occupations that often have no opportunity of promotion, such as miners, quarrymen and forestry workers. Section 3.4 in Chapter 3 showed that the majority of males over the various time periods observed were employed in the category of production and related workers; transport equipment operators; and labourers. For females, the majority was employed in clerical working positions, which tended not to be labour intensive. Of the 7 broad occupational categories the workers who are categorised under production and related workers are often prone to the greatest risk towards injury. In many cases, occupations in these categories can be very labour intensive and require physical strength. Interestingly, whilst the percentage of male workers in this category has declined from 47.0 percent in 1971 to 36.2 percent in 1996, the female percentage has almost halved from 18.9 percent in 1971 to 9.8 percent in 1996. Table 4.5.1 shows the number of fatal deaths and injuries suffered by workers in New Zealand in 1989/90. Males are certainly more prone to die or suffer injuries in the workplace. Also, these figures ignore many early deaths that occur for employees of predominantly male occupations that involve minerals and chemicals. For example, miners and quarrymen who contract various work-related illnesses such as cancer and lung disease.

Table 4.5.1: Work Fatalities and Injuries in the New Zealand Work-Force Financial Year 1989/90.

Category	Males	Females
Work Fatalities	114	4
Work Injuries	46415	12583

Source: ACC, 1991.

A natural assumption is that workers are risk adverse. However, some people may prefer to work in occupations where they are likely to become injured. In a sense, they receive satisfaction from the fact that they are in the process of testing their courage or enjoy the image that the job entails. It is not inconceivable that some persons might actually seek out jobs offering relatively high risk levels and that the wages in these jobs might actually be lower than average as a result of the high labour supply. The relative number of persons who are inclined to be interested in such occupations in an economy will influence the patterns of compensating differentials that occur.

Furthermore, Section 3.4 in Chapter 3 highlighted the fundamental differences between the types of occupation males and females have entered into over the last three decades. The majority of male dominated occupations tended to be performed outside, whilst female dominated occupations were typically performed inside. The other essential difference was the fact that female occupations were involved in caring and looking after others. Male occupations were primarily to perform tasks that were more impersonal. This difference emphasises a key reason why in the foreseeable future at least, females will not enter 'male' dominated occupations. There are occupations that males and females are more inclined to do. There is the argument that females have been guided into certain occupations and in recent years we have seen females contributing a larger percentage of the numbers in male dominated occupations. However, females, like males, have different occupational tastes. Also, as the percentage of females workers in some areas is high, it is necessarily low in others. The fact that females and males prefer to work in some areas and not others means that one cannot simply look at those areas where one gender does not usually enter and surmise that there is a problem.

Rhoads (1993) noted that the idea that the two genders had preferences for certain occupations might not be correct. Yet, subject preferences for males and females

have been recognised at both the secondary and tertiary level of education. Therefore, it would be logical to assume that such preferences would transfer into the job market. Also, such differences in occupational tastes may revolve around 'female occupations' having non-monetary benefits. Often, flexibility to leave for short periods of time due to family commitments is a strong reason for many females to enter particular jobs. Furthermore, Rhoads claimed that the non-monetary benefits of the predominantly female jobs meant that the differences in wages between the genders were overstated.

Habgood (1992) stated that "*Women tend to specialise more in the emotional 'servicing' of others*" (p. 111). Frequently, it is females who are better at dealing with the care of others, often referred to as a 'bedside' manner. This is not to say that males do not have an innate sense of caring and looking after others. It is just that the preference for looking after others that females have in these areas should be recognised and embraced and used to their full potential instead of the view that females should enter into predominantly 'male occupations'. In recent years the perception of females as better able to provide care for others in greater numbers have been to their advantage whilst at the same time a disadvantage to males. Mark Wooden, for the National Institute of Labor Studies, noted in an article featured in the Adelaide Sunday Mail (1999) that the Australian workplace was experiencing significant change and that growth industries were those that required 'soft skills', typically provided by females. Wooden added that the stereotyping of females as being more apt at communicating and providing care benefited them in the growth of the service and aged-care industries. It is males who have become unable to adjust to the changing demands of work. He contended that a case of self-discrimination had developed. Many males viewed female dominated occupations as 'women's work', often the prevailing attitude in many parts of society, and that it would be beneath them to take on such jobs. Thus, many males were missing out on employment opportunities.

Often, feminist literature has contended that the paid work force tends to only benefit males and disadvantages females. England (1992) claimed that the labour market was set up in more of a male context. Yet, there are occupations that males are often apprehensive of entering into such as kindergarten teachers, nannies and



florists due to the negative attitudes some have concerning males entering such jobs. Habgood (1992) contended that *"If men are to be successful in the world of paid employment there are strong pressures on them not to develop, and to even reject the skills associated with the performance of emotional labour. At the same time demands made on women and the situation in which they find themselves, both in paid employment and in the home, encourage and reward the development of these skills"* (pp. 112-3). Therefore, the assertion that the labour market is set up to the advantage of males is questionable. Instead, there are areas of the labour market that advantage and disadvantage both genders.

Overall, there are a variety of reasons why males, on average, tend to receive higher wages than females. Other than the fact that there tends to be greater variability in females pay, it can be highlighted from the other explanations that have been outlined such as human capital, parental leave and family responsibilities and compensating differentials that all three are changing to the benefit of females. What we are experiencing in recent years is a reversal of these explanations, where males are now acquiring less capital, are becoming more involved with child-care and are not entering in occupations that are becoming more sought after. Despite this, many advocates for those who believe females are being discriminated against in the labour market, both in New Zealand and overseas, have urged new legislation be introduced so that instances of discrimination towards females can be eradicated. Often, it has been more than just one type of legislation that has been proposed but rather a package of various policies. Much of the recent criticism of the perceived failure of females to earn the same as other males has been centred on the introduction of the ECA in 1991.

#### 4.6 The Employment Contracts Act (ECA)

The ECA was introduced in New Zealand in May 1991. The EEA was replaced the previous year and the ECA was promoted by the then National government as a way to achieve pay equity. The principle ideology of the ECA was that a deregulated labour market was a better choice when compared with the inefficiencies of a regulated one. The ECA focus was on the 'freedom of contract', where earnings were decided between the employer and the employee. Since its inception, many observers of the status of females in the labour market have claimed that it has had a detrimental effect on the earnings of females and does not provide sufficient cover for cases of discrimination.

Boyd (1997) argued that the impact the ECA had on females was entirely negative. She stated that in 1990, females earned 82 percent of males' pay for the ordinary time hourly rate. At the end of 1996 this had decreased to 80.8 percent. However, Boyd is wrong on both counts. During the 4 times the female/male ratio for the ordinary time hourly rate was recorded in 1990, the highest value was 82.13 percent. At the end of 1996, the ratio was 81.98 percent (Statistics New Zealand, PC INFOS). Therefore, this represented a decrease of only 0.15 percent from 1990-1996, not 1.2 percent as Boyd indicated. In any case, by December of 1998, this ratio had increased to 83.7 percent (Statistics New Zealand, PC INFOS). Also, Boyd pointed out that in May 1991, the average male weekly wage was \$133 more than what females earned. By 1997, this had climbed to \$155 per week (p. 22). Yet, Boyd failed to point out that, regarding the difference in the average male and female weekly wage, the female/male ratio from 1990-1997 actually increased from 73.6 percent to 74.1 percent respectively. By 1998, it had increased further to 75 percent (Statistics New Zealand, Key Statistics, 1990, 1997, and 1998).

Despite these inaccuracies, Boyd (1997) attributed the negative impact the ECA had on females to three factors: structural inequality; collective contracts, and knowledge barriers.

#### 4.6.1 Structural Inequality

Boyd noted that in May 1991, 74 percent of females in the work force worked in three sectors of the economy; retail business and financial services, and community services. Without giving a date, she outlined that this had risen to 77 percent (p. 22). Yet, data from PC INFOS (Statistics New Zealand) showed a far lower figure for 1999 with 46.1 percent of females employed in the industries of: wholesale and retail trade etc; finance and insurance; property and business service, and health and community services. Furthermore, the structure of employment since 1991 has been changing for the better for females. Table 3.5.1 in Section 3.5 and Tables 3.6.2 and 3.6.3 in Section 3.6 of Chapter 3 showed that indices for horizontal and vertical segregation from 1991 to 1996 had all decreased. Table 3.4.2 in Section 3.4 of Chapter 3 showed that from 1971-1996, over the 7 main occupational classifications, females continued to enter predominantly male occupations. Furthermore, the percentage of females in the largest main occupation, clerical workers, had decreased from 1971 to 1996.

Boyd also asserted that there had been a rise in the number of females performing part-time work and concluded that this was *"bad news for women because it shows that since the introduction of the ECA the structure of employment is changing for the worse for women"* (p. 22). There has been increasing numbers of females entering part-time work. From 1991-1996, the number of females in part-time work increased by 41.4 percent. However, the number of male part-time workers had increased by 83.7 percent, more than double the percentage increase for females. Also, whilst the number of males involved in full-time work increased by 6 percent between 1991-1996, the number of females in full-time work increased by 13.8 percent (Statistics New Zealand, Census of Population and Dwellings, 1996).

#### 4.6.2 Collective Contracts

The second factor Boyd outlined was that the majority of collective contracts females had did not have provision for penal rates. However, this does not take into account that both males and females are in occupations which are salary based and

thus often find themselves 'taking work home' in order to meet their job objectives. There are also questions whether many females would find themselves in jobs that required a sizeable amount of overtime each week. Boyd did not indicate whether the occupations that those females were predominantly in attracted extra hours of work. Also, it would be questionable whether many females would want the extra hours of overtime. Therefore, to assume that the majority of females would be worse off because their contracts do not have penal rates is presumptuous.

#### **4.6.3 Knowledge Barriers**

Lastly, Boyd raised the issue of knowledge barriers. Under the ECA, employees were less likely to know the pay rates of other employees who were performing similar work. Only when contracts cover twenty or more people must a firm make a lodgement with the Department of Labour. Therefore, according to Boyd and also Hyman (1993), the inclusion of confidentiality clauses related to pay rates makes it easier for employers to disguise any inequalities in rates of pay. However, one cannot assume that such inequalities would only favour males. Certainly, confidentiality clauses may present employers with an opportunity to disguise any deliberate discrimination. Yet, if this were the case, we would see an increase in the difference in earnings between the genders from 1991 onwards. From the statistics outlined above, this has not been the case.

Hyman (1993) and Skiffington (1997) have provided similar sentiments to Boyd (1997) by contending that the ECA had not only failed to provide benefits for female employees but also had worsened the problem. However, in Boyd's case at least, the evidence is not convincing. Yet, despite the continuing progress that females have made in the work force, there are still calls for action to be taken. Many of those who believe females are disadvantaged and discriminated against, both in New Zealand and overseas, continue to lobby the government to intervene. Often, the form of intervention has been through the implementation of policies so that any perceived discrimination against females in the labour market is eliminated. Generally, two such policies have received the most attention and discussion. Firstly, affirmative

action policies that affect the demand for labour. Secondly, comparable worth policies that affect the price of labour. Both will now be investigated.

#### 4.7 Affirmative Action Policies

Affirmative action policies can take various forms and are set up to address any obvious imbalances that may exist in jobs, so that prospective employees are treated during employment without regard to their race, colour, religion, gender or nationality (Jacobsen, 1998, p. 231). Typically, such policies revolve around the introduction of legislation where 'target groups' are outlined who are considered susceptible to discrimination. Whilst affirmative action policies may promote minority groups into various jobs, there may be instances where such measures are taken to extremes.

Love (1993) summarised the justification for affirmative action into three overlapping groups: equality of opportunity; utilitarian justifications, and distributive justice. Yet, the author contended that only under the heading of distributive justice did affirmative action succeed as a policy. The author asserted that as equality of opportunity is basically focused on the individual, it is rather difficult to warrant the imposition of burdens on some in order for others to attain equality of opportunity. When addressing utilitarian justification, Love pointed out that for justification to succeed, the benefit to society of affirmative action must outweigh the costs, therefore yielding a greater good. However, she noted that the costs were many such as resentment among non-target groups over preferential treatment, and the reinforcement of the target group as being 'inferior' and 'special'. Often, the magnitude of these costs is greater than the benefits.

Love claimed that the model of distributive justice was a sufficient reason for the use of affirmative action policies. The model was justified if the benefits and burdens of society were unevenly spread throughout groups. Therefore, the author claimed that the model went beyond equality of opportunity as "*it is concerned with outcome as well as simply the ability to compete*" (p. 495). Love asserted that the focus of the distributive model was on a more just distribution of burdens and benefits. Because of this, the author believed that the best individual in terms of qualifications for a job

would not necessarily get the job (p. 495). Also, past discrimination plays a role but not to the extent of compensation for past wrongs by penalising current generations. Overall, the author contended that the model's focus was on redistribution, not competition.

Furthermore, Love claimed that opposition to the introduction of affirmative action policies revolved around the issue of natural differences between the genders that seemed to have been raised at every step in the females' struggle for equality. She countered this argument, by firstly stating that cultivation can change an individual. Cultivation certainly plays an important role in how an individual develops in society. However, there is still a certain level of inherent differences between males and females that cultivation in any form may be unable to totally change. Psychological studies outlined in Chapter 2 have touched on these differences in the educational sector. Love also noted that the increasing numbers of females entering predominantly male occupations proves the fallacy in the argument that males and females are naturally different. There is no doubting that more females are entering 'male' occupations, yet as concluded in Chapters 2 and 3, the numbers of females entering into subjects or occupations would most probably converge to a limit. In most instances, differences among females and males can mean that there are gender differences on average. However, there are often overlaps that exist between the genders. Also, another fact to consider is that the nature of occupations can change, perhaps due to skill levels increasing or decreasing which in turn leads to changing gender applicants for positions. Therefore, it may be a remote possibility for female workers to occupy half of the occupations strongly dominated by males, and vice versa.

To take the case of employee appointments at universities as an example, Love pointed out that if females received the same education as males but were not obtaining the same places at universities and other professions, then the characteristics of discrimination were exposed. Further, she claimed that the supposed diluting of academic and professional standards did not occur as affirmative action programmes required minimum qualification and equivalent performance once acceptance was gained. There has been some evidence that this has not always been the case.

#### **4.7.1 Affirmative Action: Canadian Evidence**

One such example has been at Canadian universities. An article in the Vancouver Sun (1999) noted that whilst merit was important when deciding on who to hire for the university faculty, the deciding factor often came down to gender, race or physical disability. Further, president of the Society for Academic Freedom and Scholarship, Doreen Kimura pointed out that studies indicated the proportion of female applicants hired for university positions in all fields was greater than the proportion of male applicants who obtained positions. She added that data suggested females had been over-hired at Canadian universities, where their percentages were higher than would have been anticipated from their representation in the relevant applicant pool.

Simon Fraser University executive director Gregg MacDonald stated that their position on the deliberate hiring of females over males was defensible if one believed there were social benefits in drawing more females into the area where few were currently employed. Then, he argued, it was an acceptable program. Yet, what would be the measurement of any social benefits that would accrue? A prospective female faculty member who is interested in a position within a department may apply because of her own personal interest to be there, not because she is influenced by the appearance of another female within the department. One has to ask whether the same rule would apply for males applying in university departments that were predominantly employed by females. The answer would probably be negative, as such actions would be deemed discriminatory against females. Yet, clearly, this is no different from what has happened to females who are deemed to be fairly treated, by being promoted ahead of their male colleagues

In the same article from the Vancouver Sun (1999), Sharon Kahn, a member of the University of British Columbia faculty, stated that her university had decided 10-15 years ago that around one-third of new tenure track hires should be females. This was because it was roughly the percentage of female PhD graduates in Canada at that time. Clearly, it is fallacious to argue that current university faculty positions for females should be set on the number of female PhD graduates enrolled 10-15 years ago. The same situation would apply with males. Yet, often with such cases, reason and

commonsense tends to be put aside for the perceived benefits that such policies will accomplish for society. Andrew Irvine, a professor at the University of British Columbia, added that such goals diverted the attention from the real aim of universities, which is to promote knowledge.

Overall, the example of Canadian universities shows that affirmative action policies do lead to reverse discrimination. There is no doubt that females, like males, bring with them their own set of abilities and ways of contributing to the work place. But to hire on the notion of what someone may bring into a position, instead of what can visibly be determined through experience and qualifications, leads to more questions than answers.

One answer why a female with potential may be chosen ahead of a male with qualifications and experience is related to funding. The Vancouver Sun noted that in Canada, the federal government paid part of the salaries of newly appointed employees in particular universities. These part payments encompassed physics, astronomy and biological sciences departments, by the way of council awards, if females were hired. Furthermore, any large institution within Canada that bids on a federal contract worth \$200,000 or more requires an employment equity programme. There is no doubt that universities have become more profit driven in recent years. Yet, such policies compromise the position that universities should take to enhance the knowledge of students through appointing the best academic staff available. Also, the article pointed out that no Canadian University had been punished by a decrease or withdrawal of funding due to non-compliance of such programmes.

Whether the distributive model is a justifiable cause for the use of affirmative action as a policy is again dubious. Love (1993) admitted that the model on its own was not a remedy that could immediately be applied to affirmative action cases. Failure would occur if the connection between the past discrimination and the current disadvantage were unable to be made. The author admitted that affirmative action by itself was not the sole answer to eliminating any discrimination that may or may not exist in the labour market. This leads to a wider issue when considering such policies. Yet, she



also alluded to the fact that any such policy set up under the heading of affirmative action requires detailed criteria and a complex structure.

This raises the question of how many conditions and exceptions would need to be placed on affirmative action programmes so that target groups are made better off whilst the effects on other groups are minimal? In essence, how complex would such policies need to be and are such policies possible? Love noted that the goals and aims of an economy continually change. Therefore, would the goals in the policy need to change as well? This would confuse matters further and those trying to comply would find it very perplexing. The author admitted that "*Affirmative action can and should be a carefully considered and justified attempt to balance rights in a way that is far more than just 'reverse discrimination'*" (p. 499). It appears that in many countries where affirmative action has been implemented, this has already been the case. Overall, affirmative action policies require a complex structure that is prone to change within a short period of time. Love noted that "*Justification is the most important aspect of affirmative action*" (p. 492). Therein lies the problem with affirmative action in terms of females as a target group. Justification does not seem to be apparent.

An equally debatable and controversial policy that has been heavily pushed in recent years is the idea of comparable worth. Unlike affirmative action, comparable worth addresses differences in wages between the genders more directly. It is where we turn to next.

#### **4.8 Comparable Worth Policies**

Given its title, 'comparable' means that occupations are deemed to be alike through factors such as effort, responsibility, skill, or other dimensions valued by an organisation. There is a clear distinction between the discussion of comparable worth as a theory and as a policy. As a theory, Jacobsen (1998) stated that "*Comparable worth is the premise that job characteristics should receive equal returns, regardless of what job they are embodied in or who performs the job*" (p. 324). It postulates a link between job segregation and wage differentials. When wages for those

occupations that are predominantly female and/or minority male are lower than wages in an occupation predominantly occupied by another group that in turn has an equal value to the employer, wage discrimination is implicated.

As a policy, Jacobsen noted that *"a comparable worth policy attempts to impose this criterion in some form in some compensation-setting environment"* (p. 324). In most instances, the type of comparable worth policy proposed is to raise wages rather than having other wages lowered in line with others whose skill, effort, responsibility and risk are equivalent when comparing occupations. However, for two jobs to be considered of equal worth, they need not be equal in each factor relating to the jobs' worth. Instead, it is sufficient that their total value across all such factors is equal (Witting and Lowe, 1989, p. 6).

#### **4.8.1 Assessing Comparable Worth: Job Evaluation**

Typically, job evaluation is the leading method in which jobs are assessed in terms of comparable worth. The requirement of job evaluation is that the jobs are not evaluated on the performance of an individual within the job, but instead on the requirements of the actual job. England (1992) identified 4 dominant methods of job evaluation: ranking, classification, factor comparison, and point-factor method. The first three have become less popular over recent times because they left many decisions implicit that were made explicit in the fourth job evaluation method of point factor. Hume (1993) admitted that the use of job evaluation schemes involved subjective decision making, claiming though that the process still had merit once the subjective nature of the scheme was identified and controlled for. Others have argued that no matter which method is used, job evaluation is prone to subjectivity and unreliability.

The single largest problem with job evaluation is finding a correct method that can be implemented. Under job evaluation, jobs that receive a similar score should receive similar wages. Yet, the weighting of the factors used in determining the scores of various occupations can vary greatly and in turn affect the outcome. If larger

weighting were put on care and nurturing skills, female jobs would tend to score higher than male jobs.

Typically, opposition to comparable worth has relied on economic arguments to discredit its validity. Paul (1989) noted 2 critical presumptions that were generally made with job evaluation. Firstly, jobs have intrinsic worth and secondly such worth could be objectively measured (p. 24). These 2 presumptions have been where most of the counterarguments against comparable worth have been centred. The author noted that a fundamental flaw with the theory of intrinsic value was its inability to explain everyday market phenomena. Instead, Paul asserted, the marginal utility theory of value had several advantages over the theory of intrinsic value. For a theory of value that was based on demand and supply in the market, it could explain how prices are set for various commodities and why commodities that had the same amount of labour time spent on them differed in their value in the market.

In relation to comparable worth, Paul concluded that such a policy shared ground with the labour theory of value in a "*desire to discover some objective characteristics of worth or value apart from the valuations in the marketplace derived from the choices of actual buyers*" (p. 112). Therefore, advocates of comparable worth are looking for identifiable, impartial qualities that would be able to be transferred from one job to the next that theoretically everyone could agree on. This seems highly improbable. Job evaluators often find it very difficult to reach a consensus on the value of jobs. The fact that they are often asked to re-evaluate their decision, not to mention the ever changing skill levels of jobs, makes identifying transferable qualities a process that does not seem to reach an end. England (1992) asserted that it was contradictory that many business groups who objected to the use job evaluation schemes in the context of comparable worth used such schemes in the recruitment of employees. Yet, there is often a considerable difference in the motives and outside interests between evaluation schemes used for prospective employees and those used for comparable worth policies. Paul (1989) pointed out that in parts of the U.S., job evaluators had relented to the pressures from unions to adjust their conclusions from a position of finding no discrimination to detecting discrimination against females (p. 109).

Further, Paul pointed out that intrinsic value confuses moral language with economic language. The notion of value with economics is the value of a good or service that would be traded for in the market. Value from a comparable worth view searches for moral principle that deems to determine the contribution or worth of certain occupations to the welfare of society. Therefore, in relation to economic and moral language respectively, one can be easily determined, the other simply cannot.

Apart from the problems of how the job evaluation scheme is set up, Borjas (1996) believed that with such a scheme, workers would seek jobs that had the most points to them, as more points meant higher wages. Consequently, there is a loss in economic efficiency, as other occupations that have few points are not entered into. Under the neoclassical framework, a decrease in supply of such jobs would lead to a rise in wages. Yet, the process by which wages are determined under comparable worth would not see this occur.

In addition to the assumptions made, Paul (1989) believed that the use of comparable worth would have various negative effects concerning the employment of females. By artificially increasing the wages of only 'female occupations', there would be a stronger incentive for females to enter already predominantly female occupations, therefore, worsening the situation of gender segregation which many comparable worth supporters claim is a primary reason why females tend to earn less than males. A significant influx of workers into such occupations would also create excess supply that may lead to increased unemployment for females. Furthermore, Paul noted that the artificially higher wage level for females would lead many employers to substitute capital for labour that would decrease the number of jobs available. Overall, instead of encouraging females to enter non-traditional jobs, comparable worth is likely to preserve and strengthen job segregation.

Notwithstanding the effect comparable worth would have on female employment, such a policy would surely affect the male labour force as well. Paul questioned whether males would passively watch their relative positions in the wage scale erode. Males could equally demand comparable worth if they did not receive the same wage

level as another predominantly male occupation that received the same rating using a job evaluation scheme. Therefore, once implemented, the bounds of comparable worth appear to be endless.

Loney (1999) argued that with such schemes, employees were the only winners; especially in the public sector where wage spirals were inclined to occur for both genders. However, many employees may lose out by being made redundant in the private sector, which could simply downsize or out-source to limit such damage. Instead, the costs in the public sector would fall further on the taxpayer due to increased wages, which lead firms to downsize.

England (1989) claimed that the economic arguments against comparable worth had been used before with other policies used to eliminate discrimination in the labour market such as equal employment opportunities and affirmative action. Nevertheless, the main difference between those schemes and comparable worth is the sheer weight of change comparable worth will have on the labour market. Comparable worth policies affects far more workers than 'equal pay for equal work' policies. Whilst equal employment opportunities and affirmative action seeks to affect who an employer can hire, comparable worth affects the wage rates. Therefore, comparable worth tends to have far more reaching consequences. Moreover, Paul (1989) concluded that comparable worth is essentially backward looking. It looked at the perceived injustices of the past. A far more progressive strategy is to forget the past and concentrate on the future.

#### **4.9 Some Conclusions**

This chapter posed two broad questions. Firstly, what were the theoretical reasons for differences in wages between males and females and secondly, what further policies, if any, are required to eliminate any differences in wages between the genders? In regard to the first question, we have seen that there are a variety of factors that can help explain any wage differences between males and females. Human capital, parental leave and family responsibilities, supply and demand for different types of jobs, and compensating differentials all contribute towards

explaining why males, on average, tend to earn more than females. Females in general are acquiring higher levels of human capital and entering 'male occupations' in greater numbers. Males are becoming more involved, although slowly, in parental leave and family responsibilities. Therefore, as these explanations for any difference in earnings continue to lose their emphasis, this would correspond with a continuing closing of the earnings gap between the genders. This has indeed occurred.

Regarding the second question, of what further policies, if any, were required to eliminate any differences in wages between the genders, we have determined that the idea that discrimination is the primary reason for any difference in wages is false. What many people find hard to comprehend is that the ideals of a fair and just society will most probably never exist. Discrimination, albeit, at various levels, does exist and will probably continue to be evident in all areas of society. We also have to bear in mind that some inequality is not necessarily bad for an economy. Inequality is inevitable in a world where individuals have distinct tastes and talents. However, action should be taken where there is an obvious and perceived injustice towards a certain group in society, e.g. black citizens in the U.S. Whether the same condition applies to the current position of females in the labour market seems dubious.

Furthermore, despite the best intentions of policies to swing the pendulum to enhance the wages and involvement of females in the work place, often, the pendulum can swing too far. This is becoming more evident in recent years. From the examples given concerning the academic learning environment and the law professions, serious questions have to be asked over the decisions to utilise such policies that are frequently detrimental to males.

The issue of the gender wage gap has coined various catch phrases such as 'glass ceilings', 'boys clubs' and 'unlevel playing fields' that hinder females from achieving in the work place to the same extent that males do. If policies were introduced that meant females were seen to be given special consideration, would that not create a feeling of resentment that probably did not exist in the work place to begin with? Certainly, feminist critique says that they wish to be treated as equals with their male counterparts in all domains of society. This is certainly not what these policies are

providing. Instead it is a 'girls club' and an 'unlevel playing field' tilted on the female side.

## CHAPTER 5

### SUMMARY AND CONCLUSIONS

#### 5.1 Discussion of Results

This thesis has looked at a variety of data and statistics in order to address the issue of the gender wage gap in New Zealand. Chapters 2 and 3 have shown statistics contrary to many generally held beliefs concerning differences between males and females. Chapter 2 showed the assertion that males perform at a higher level than females at secondary school and at universities was incorrect. It was found that at a secondary level, there were particular subjects which males performed better in than females, and vice-versa. Often, differences between the genders regarding performance in various subjects were not that pronounced. The apparent poor performance of females was also linked to issues of classroom participation and self-esteem, yet studies into these areas were inadequate and were easily rebutted by studies that showed the contrary.

At a tertiary level, particularly at universities, it is now females who are the predominate gender attending such institutions. Females make up the largest number of bachelor degree, Bachelors (Honours) and Masters enrolments. They are only slightly behind males in post-graduate diplomas and PhD enrolments although continuing trends will most likely see females overtake male numbers within a short time. Again, like secondary school, there are distinct subjects that each gender tends to enter. This distinction has become more blurred over recent years and will continue to do so. However, we must realise that innate difference between males and females will always produce a difference in what subjects they choose to enter.

Chapter 3 reiterated the fact that primary differences between the genders carry through to the choice of occupation to enter into. Both 'male occupations' and 'female occupations' are experiencing increasing numbers of the opposite gender



entering such occupations. We further noted that this is often to the detriment of males as many 'female occupations' have become in greater demand due to the changing nature of the labour market.

When considering incomes, females continue to improve their position in relation to males. There has been marked progress regarding females receiving income in the higher brackets, along with becoming less associated with lower income brackets. Unavailable data at a more detailed level limits further analysis of direct comparisons of earnings between males and females of equal standing in the labour market. However, occupations entered into from those who attained some type of university degree have shown a continual decrease in the difference in earnings between the genders. Still, there tends to be some difference in overall earnings between males and females. Some conclude that this is due to discrimination. Yet, others point to human capital, parental leave and family responsibilities, and compensating differentials as fundamental reasons why females on average earn less than males.

Given these explanations, one would conclude that some degree of difference in overall earnings would exist and would continue to be evident, in the short to medium term at least. However, the labour market is continually changing and the general statistics discussed in Chapter 3 is evidence of this. Therefore, would policies such as affirmative action and comparable worth help or hinder the position of all workers in the labour market? Issues and evidence raised in Chapter 4 suggests the latter. Furthermore, those who believe females are still being discriminated against contend that a labour market that is flexible and efficient would be to the detriment of females. The fact that the introduction of the ECA into New Zealand has occurred at the same time as females improving their overall position in the labour market suggests that a flexible and efficient labour market does not appear to adversely affect female employment.

We also have to ask whether such policies would only benefit females without affecting males. Again, this would not appear to be the case. Surely society would want females to succeed because they are good enough, not because they are given handouts that may disadvantage males in the labour market. Also, what would be

considered an appropriate wage gap? Those who believe females are being discriminated against may argue that no gap is appropriate, but would that be possible to achieve, and if so, maintain? What if policies introduced resulted in reversing the wage gap to favour female employees? Would male groups begin pushing policies to be on an equal footing with females and receive favourable treatment so that the size of any wage gap is narrowed? Notwithstanding the fact that there will probably always be differences between the genders, in the labour market and society in general; the disadvantages of such policies outweigh the advantages.

Lastly, there are different statistics and policies aimed at identifying the plight of females in comparison to males in the labour market. It is interesting to note where this debate appears to be heading and what further research needs to be done. The gender wage gap appears to have developed, where the careers of its advocates depend on the continuing pursuit of identifying discrimination in the labour market. If one study fails to find evidence of discrimination, is the answer commissioning another one? Opposing views are one thing, misleading data and statistics are another. This thesis has shown that data does not often provide a correct answer. Policies should be designed for the current and future situation of males and females, not for the past situation. Policy makers must clearly acknowledge the difference between generations. Hence, more detailed data are required.

Often, the careers of those doubting the existence of discrimination in the labour market do not depend on the results of such findings. However, the careers of its advocates are dependent on such outcomes. The problem with such a powerful lobby group is that there are limited numbers and opportunities for voices to be heard that report the increasingly positive statistics regarding females. This thesis goes some way towards rectifying this situation.

## **5.2 Limitations and Further Research**

Whilst this thesis has looked at a variety of data concerning education, occupations and earnings, data at a more disaggregated level would provide more accurate results. This is especially true for various occupations males and females enter and earnings

that they receive. This thesis has summarised many studies that suggest females have been discriminated against. However, when data is disaggregated, we have found their findings questionable.

In terms of further research, it would be interesting to apply more detailed data to see whether the position of females in the labour market is more improved than has been found in this thesis. Studies into the level of horizontal and vertical segregation using 4-digit level data would provide a more accurate account of the changing position of females in the labour force. Also, investigations into the earnings of males and females at different age brackets and given the categories of occupations would be useful, so that more direct comparisons can be made between the genders. However, if further analysis is to be attempted, not only would data need to be more disaggregated but it must become more freely available. One drawback is that data concerning earnings for New Zealand workers is not always publicly available or is expensive to attain. A change in policy by Statistics New Zealand to free up the confidentiality of such data would go a long way towards solving such problems.

## APPENDICES

### Appendix A: Occupational Classifications.

All classifications for occupational categories a, b, c, d, e and f correspond to Smith (1981) who used the 1971 Census, ISCO and N.Z. Unit Group Codes.

- a) Professional and Technical: The members of the following occupations were included in this group: 1, 3, 4, 5, 7, 8, 9, 11, 12, 12, 14, 15, 16, 17, 18 and 19.
- b) Administrative and managerial: The members of the following occupations were included in this group: 20, 21, 31, 40, 50 and 60.
- c) Clerical: The members of the following occupations were included in this group: 31, 32, 33, 34 and 39.
- d) Sales Workers: The members of the following occupations were included in this group: 41, 43, 44, 45 and 49.
- e) Foremen, inspectors and supervisors: The members of the following occupations were included in this group: 30, 35, 42 and 70.
- f) Manual workers: 36, 37, 38, 51, 52, 53, 54, 55, 56, 57, 58?, 59, 61, 62, 63, 64, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98 and 99.

*Source:* Smith, 1981.

## Appendix B: EMLF and EFLF Occupational Listing.

Table 1: Number of the EMLF Employed at the 2-Digit Occupational Level, 1971, 1976, 1981, 1986, 1991 and 1996.

Occupation	1971	1976	1981	1986	1991	1996
Professional and Technical						
Physical scientists and technicians	3163	3355	2661	4025	3335	2964
Architects, engineers and technicians	22675	29948	25629	31365	34526	41963
Aircraft and ships officers	2823	3181	2463	2478	2388	3045
Life scientists and technicians	2718	3767	4059	3935	3596	4106
Medical, dental and veterinary workers	9362	11761	12390	12723	12849	13116
Statisticians, mathematicians, systems analysts and technicians	1291	1781	2150	3591	4350	6438
Economists	423	648	848	1016	1784	2720
Accountants	7196	9868	9711	10361	12198	11688
Jurists	2693	3471	3792	4355	4701	4944
Teachers	18639	22998	22631	19742	20637	20327
Workers in religion	2842	2796	2991	2919	2861	2579
Authors, journalists, and writers	1928	2123	2175	2490	2756	3450
Sculptors, painters (artists), photographers	2723	3050	3318	3827	3708	4647
Composers and performing artists	1095	1752	1881	2087	2456	3053
Athletes, sportspersons	709	848	750	915	1125	1560
Professional, technicians n.e.c.	2094	4157	6727	7430	6765	8540
Total	82372	105500	104174	113255	120032	135137
Administrators and managerial workers						
Legislative officials and government administrators	625	770	786	1413	480	756
Managers (excluding those in wholesale and retail trade, catering and lodging services, and in farming)	26781	37370	41640	59067	63114	79011
Total	27405	38140	42426	60480	63594	79767
Clerical workers						
Clerical supervisors	4063	5531	5399	5655	9138	4226
Government executive officials	4638	5433	6039	6090	3252	3720
Stenographers, typists and card-and-tape-punching machine operators	530	464	663	525	1238	1298
Bookkeepers, cashiers	13804	14560	14762	13436	11181	9830
Computing machine operators	598	846	1382	1743	2276	2031
Transport and communication supervisors	5850	6201	6728	6434	4055	3642

Transport conductors	637	555	552	521	84	95
Mail distribution clerks	2241	2133	2451	3330	3761	5135
Telephone and telegraph operators	1579	1270	1214	938	551	699
Clerical n.e.c.	36511	33593	28628	27246	18408	24698
Total	70449	70584	67815	65916	53942	55371
Sales workers						
Managers (wholesale and retail trade)	16034	14941	14003	10488	10932	14252
Working proprietors (wholesale and retail trade)	8323	11992	10938	13227	11226	7412
Sales supervisors, and buyers	8026	6853	4406	6236	5055	2871
Technical sales staff, commercial travellers, and manufacturers agents	12999	13383	13623	15311	16563	16262
Insurance, real estate, securities and business services salespersons, and auctioneers	9806	10587	10817	10862	11759	11061
Salespersons and shop assistants	22204	21209	23787	21348	25275	32522
Sales workers n.e.c.	91	113	242	80	81	215
Total	77481	79076	77814	77550	80891	84593
Service workers						
Managers (catering and lodging services)	1995	2219	2390	2291	1955	3807
Working proprietors (catering and lodging services)	3147	3718	3896	5549	5355	3983
Housekeeping and related service supervisors	256	290	356	368	189	296
Cooks, waiters/Waitresses, bartenders	6438	6641	6678	7203	8781	12027
Housestaff and related housekeeping service workers n.e.c.	1072	763	1482	1859	2450	3072
Building caretakers, charworkers, and cleaners	5751	6475	7473	7143	7638	8369
Launderers, drycleaners, and pressers	1265	1050	1128	1092	947	1076
Hairdressers, barbers, beauticians	1516	1069	1085	1106	1034	1028
Protective service workers (including armed forces)	18303	21199	22680	21321	20138	17973
Service workers n.e.c.	3391	4032	4748	4512	4104	6215
Total	43131	47454	51914	52442	52589	57843
Agricultural, animal husbandry, and forestry workers, fishermen, and hunters						
Farm managers and supervisors	5801	5432	3659	4457	4139	5243
Farmers	58907	57352	59420	59360	54078	51747
Agricultural and animal husbandry workers	39666	36625	40109	36455	29868	33924
Forestry workers	5343	6745	9318	8738	4845	6617
Fishermen and hunters	3399	3530	4739	4181	3084	2775
Total	113115	109684	117243	113189	96014	100305
Production and related workers, transport equipment operators, and labourers						

Production supervisors, overseers and general foremen/forewomen (non-clerical) and excluding agriculture, transport, sales and service supervisors, overseers and Foremen/forewomen.	13150	17855	16245	20207	4920	6089
Miners, quarrymen, and well-drillers	2704	2154	1902	2169	1317	1472
Metal processors	2512	2711	2814	2424	1982	2391
Wood preparation workers and paper makers	7576	8661	9452	6876	5396	3546
Chemical processors	2298	1920	1886	2016	1518	1394
Spinners, weavers, knitters, dyers	5526	4624	3866	3533	2093	1857
Tanners, fellmongers, and pelt dressers	1318	859	902	1064	815	1070
Food and beverage processors	36851	38456	39957	33081	24188	23165
Tobacco preparers and tobacco product makers	163	142	126	75	36	21
Tailors, dressmakers, sewers, and upholsterers	4775	4890	4721	5031	4701	4695
Shoemakers and leather goods makers	2156	2035	1995	1550	839	764
Cabinet makers and related woodworkers	4907	5607	5634	6164	4568	13719
Stone cutters and carvers	197	198	191	192	267	332
Blacksmiths, toolmakers, and machine tool operators assemblers	6778	7089	7589	7565	4985	6593
Machinery fitters, machine assemblers, and precision instrument makers (except electrical)	46492	50622	50733	49043	38277	33569
Electrical fitters and electrical and electronics workers	23315	26738	29723	28148	21692	17312
Broadcasting station and sound equipment operators and cinema projectionists	333	403	612	731	551	674
Plumbers, welders, sheet-metal and structural metal preparers and erectors	22491	25628	23652	24497	18068	18383
Jewellery and precious metal workers	661	843	941	855	830	759
Glass formers and potters	2307	2364	2202	1938	1365	1389
Rubber and plastics products makers	4081	4528	4746	5022	3381	3254
Paper and paper-board products makers	848	616	554	671	585	441
Printers	8318	8462	8109	7887	7089	6960
Painters	12313	14212	13430	13812	12200	12719
Production and related workers n.e.c.	2832	3282	4794	3917	2133	2142
Bricklayers, carpenters, and other construction workers	44332	53545	40853	44211	38796	32412
Stationary engine and related equipment operators n.e.c.	3284	3221	3227	3452	2106	1484
Material handling and related equipment operators, dockers, and freight handlers	38188	37326	34889	32177	22127	19595
Transport equipment operators	41302	41084	37848	35916	31485	32267
Labourers n.e.c.	25254	34563	38987	29946	27746	40722
Total	367256	404630	392573	374163	286049	291182
Total – All Occupations	781209	855067	853958	865833	764675	834165

Note: The above table was constructed using 2-digit part-time and full-time occupational data comprising of 80 occupations which was then converted into an EMLF format.

Source: Statistics New Zealand.

Table 2: Number of the EFLF Employed at the 2-Digit Occupational Level, 1971, 1976, 1981, 1986, 1991 and 1996.

Occupations	1971	1976	1981	1986	1991	1996
<b>Professional and Technical</b>						
Physical scientists and technicians	1353	1608	1157	2234	2094	2040
Architects, engineers and technicians	1077	1788	1446	2504	2978	5234
Aircraft and ships officers	4	24	39	63	107	108
Life scientists and technicians	1624	2554	2753	3131	3198	3540
Medical, dental and veterinary workers	23241	31210	34971	33423	34851	37385
Statisticians, mathematicians, systems analysts and technicians	252	441	720	1359	1548	2090
Economists	56	124	243	516	1520	2558
Accountants	277	777	1167	2793	5306	6531
Jurists	52	71	395	1211	2127	2772
Teachers	27679	33484	34434	31178	36669	43880
Workers in religion	511	400	750	716	834	849
Authors, journalists, and writers	731	1012	1271	1977	2750	4476
Sculptors, painters (artists), photographers	1009	1319	1811	2489	2720	3561
Composers and performing artists	1240	1585	1691	1740	2051	2790
Athletes, sportspersons	170	179	338	620	899	1392
Professional, technicians n.e.c.	1811	3732	6327	8501	11208	14999
Total	61083	80304	89510	94451	110856	134202
<b>Administrators and managerial workers</b>						
Legislative officials and government administrators	13	50	84	248	222	489
Managers (excluding those in wholesale and retail trade, catering and lodging services, and in farming)	1072	3026	3825	11436	16709	26240
Total	1085	3075	3909	11684	16931	26729
<b>Clerical workers</b>						
Clerical supervisors	468	1611	2495	6684	14111	14070
Government executive officials	193	459	663	1487	1184	1863
Stenographers, typists and card-and-tape-punching machine operators	35138	39269	36333	30392	32642	31338
Bookkeepers, cashiers	17484	27143	34005	41099	41483	39378
Computing machine operators	6820	6421	5990	9350	5178	4332
Transport and communication supervisors	153	279	563	926	1055	834
Transport conductors	2	5	33	6	5	14
Mail distribution clerks	1593	1952	2346	3434	3129	3260
Telephone and telegraph operators	5754	5867	5901	5586	2624	2730



Clerical n.e.c.	48882	61394	69039	73998	62354	68826
Total	116486	144397	157366	172959	163761	166644
<b>Sales workers</b>						
Managers (wholesale and retail trade)	2304	2963	4271	4688	5271	8741
Working proprietors (wholesale and retail trade)	4144	875	7314	9119	8052	5222
Sales supervisors, and buyers	872	1028	1199	1875	1916	1392
Technical sales staff, commercial travellers, and manufacturers agents	332	1033	2580	4413	6206	7823
Insurance, real estate, securities and business services salespersons, and auctioneers	410	914	1718	2756	4277	5712
Salespersons and shop assistants	33670	39730	42219	36485	35316	43326
Sales workers n.e.c.	41	43	126	45	30	135
Total	41771	46586	59426	59379	61067	72350
<b>Service workers</b>						
Managers (catering and lodging services)	1204	1570	1740	2180	1808	4595
Working proprietors (catering and lodging services)	2272	2906	3414	5276	5516	4446
Housekeeping and related service supervisors	3064	2951	2645	2154	1257	1836
Cooks, waiters/Waitresses, bartenders	14152	15594	17648	18318	14762	19796
Housestaff and related housekeeping service workers n.e.c.	10890	10715	12090	11396	11493	12818
Building caretakers, charworkers, and cleaners	6675	9184	8080	11561	11397	13755
Launderers, drycleaners, and pressers	394	2596	2606	2715	1982	2018
Hairdressers, barbers, beauticians	4773	4837	5058	6336	6798	7086
Protective service workers (including armed forces)	886	1139	1877	1817	2352	3017
Service workers n.e.c.	6532	8206	10379	10979	12294	21834
Total	50841	59695	65535	72729	69657	91199
<b>Agricultural, animal husbandry, and forestry workers, fishermen, and hunters</b>						
Farm managers and supervisors	73	191	135	332	431	729
Farmers	6616	10450	14546	20828	19394	21701
Agricultural and animal husbandry workers	12097	13434	17879	16379	12995	15312
Forestry workers	42	120	371	311	198	360
Fishermen and hunters	45	86	236	234	222	302
Total	18872	24280	33165	38082	33239	38403
<b>Production and related workers, transport equipment operators, and labourers</b>						
Production supervisors, overseers and general foremen/forewomen (non-clerical) and excluding agriculture, transport, sales and service supervisors, overseers and foremen/forewomen.	1015	1764	1853	3732	906	938

Miners, quarrymen, and well-drillers	1	2	8	30	20	33
Metal processors	123	166	171	123	108	158
Wood preparation workers and paper makers	207	372	525	423	288	251
Chemical processers	318	345	404	257	266	171
Spinners, weavers, knitters, dyers	4520	3871	3104	3140	1466	1373
Tanners, fellmongers, and pelt dressers	167	232	254	249	120	173
Food and beverage processers	3991	4709	5321	6324	4200	5946
Tobacco preparers and tobacco product makers	363	321	254	165	51	51
Tailors, dressmakers, sewers, and upholsterers	29363	20914	19379	18806	12525	10626
Shoemakers and leather goods makers	2962	2792	2718	2177	749	533
Cabinet makers and related woodworkers	214	489	477	525	410	603
Stone cutters and carvers	2	9	9	3	3	11
Blacksmiths, toolmakers, and machine tool operators assemblers	618	649	635	635	519	851
Machinery fitters, machine assemblers, and precision instrument makers (except electrical)	1040	1969	1590	1772	999	872
Electrical fitters and electrical and electronics workers	2223	3589	3156	2895	1610	1131
Broadcasting station and sound equipment operators and cinema projectionists	99	105	129	216	155	182
Plumbers, welders, sheet-metal and structural metal preparers and erectors	790	731	543	815	612	362
Jewellery and precious metal workers	185	269	279	299	269	282
Glass formers and potters	501	708	794	722	480	513
Rubber and plastics products makers	1830	1863	1598	1311	693	539
Paper and paper-board products makers	718	473	336	420	237	126
Printers	2724	3040	3504	3755	3047	2903
Painters	162	268	417	566	677	702
Production and related workers n.e.c.	1800	1880	3182	2529	1011	899
Bricklayers, carpenters, and other construction workers	9	165	188	348	335	371
Stationary engine and related equipment operators n.e.c.	4	13	17	36	35	20
Material handling and related equipment operators, dockers, and freight handlers	8150	8338	8223	9630	7232	8159
Transport equipment operators	1198	1999	2211	2430	2009	2402
Labourers n.e.c.	2374	6724	9030	5463	5825	16353
Total	67665	68761	70302	69791	46850	57525
Total – All Occupations	357801	427096	479212	519074	502359	587051

Note: The above table was constructed using 2-digit part-time and full-time occupational data comprising of 80 occupations which was then converted into an EFLF format.

Source: Statistics New Zealand.

### **Appendix C: Worker Earnings Equations.**

- 1) Average hourly ordinary time earnings = total ordinary time pay divided by total ordinary hours.
- 2) Average weekly ordinary time earnings = total ordinary time pay divided by (full-time employees +  $\frac{1}{2}$  part-time employees).
- 3) Average weekly earnings = total pay divided by (full-time employees +  $\frac{1}{2}$  part-time employees).

*Source:* Department of Labour.

## REFERENCES

- Accident Compensation Corporation (ACC) (1991), *'Injury Statistics, Work'*, vol. 1.
- Adelaide Sunday Mail (1999), *'Women Winning Jobs Race'*, November 21.
- Albelda, R., Drago, R. and Shulman, S. (1997), *'Unlevel Playing Fields: Understanding Wage Inequality and Discrimination'*, McGraw-Hill Companies Inc, New York.
- American Association of University Women (1992), *'How Schools Shortchange Girls: A Study of Major Findings on Girls and Education'*, AAUW Educational Foundation, The Wellesley College Center for Research on Women, Washington, DC.
- Anker, R. (1998), *'Gender and Jobs: Sex Segregation of Occupations in the World'*, ILO, Geneva.
- Anonymous (1999), *'Scholastic Appeasement Test?'*.
- Bate, R. E. and Birks, K. S. (1998), *'Fact or Fiction: Five Issues About Women's Employment in New Zealand'*, Centre for Public Policy Evaluation, Massey University, Student Paper no. 1.
- Bittman, M. (1991), *'Juggling Time - How Australian Families Use Time'*, Australia: Office of the Status of Women, Department of the Prime Minister and Cabinet.
- Blakemore, A. E. and Low, S. A. (1984), 'Sex Differences in Occupational Selection: The Case of College Majors', *The Review of Economics and Statistics*, vol. 66, no. 1, February, pp. 157-63.
- Bergmann, B. R. (1986), *'The Economic Emergence of Women'*, Basic Books Inc, New York.
- Birks, K. S. (1995), 'Book Review: Women and Economics: A New Zealand Feminist Perspective', *New Zealand Economic Papers*, vol. 29, no. 1, pp. 103-10.
- Borjas, G. J. (1996), *'Labor Economics'*, McGraw-Hill, New York.
- Boyd, A. (1997), 'The Impact of the Equal Pay Act 1972', in New Zealand Council of Trade Unions (ed), *'Closing the Gap'*, CTU, Wellington, pp. 19-24.
- Brooks, R. (1991), 'Male and Female Labour Force Participation in New Zealand 1965-1990: A Cointegration Analysis', *New Zealand Economic Papers*, no. 25 (2), 1991, pp. 219-51.

- Brosnan, P. (1987), 'Maori Occupational Segregation', *Australian and New Zealand Journal of Sociology*, vol. 23, no. 1, pp. 89-103.
- Burge, K. (1997), 'Women Graduates Lag Behind in the Pay Stakes', *The New Zealand Herald*, June 13<sup>th</sup>, p. A3.
- Charen, M., (1999), 'Return of Pay Equity "Dead Horse"?', *Anonymous Paper*, March 22.
- Chubb, N.H., Fertman, C.I., and Ross, J.L. (1997), 'Adolescent Self-Esteem and Locus of Control: A Longitudinal Study of Gender and Age Differences', *Adolescence*, vol. 32, no. 125, pp. 113-29.
- Colley, A. (1998), 'Gender and Subject Choice in Secondary Education', in Radford, J., (ed): *Gender and Choice in Education and Occupation*, pp. 18-36.
- Cox, B. G. and Pollock, R. W., (1997), '*New Zealand Graduates 1990: Follow-up Survey, 1991 and 1996*', Ministry of Research, Science and Technology.
- Davidson C. and Bray, M. (1994), '*Women and Part-Time Work in New Zealand*', New Zealand Institute for Social Research and Development Ltd, Christchurch.
- Davies, L. and Jackson, N. (1993), '*Women's Labour Force Participation in New Zealand: The Last 100 Years*', Social Policy Agency, Wellington.
- Department of Education (1986), '*State Secondary Schools in New Zealand: A 1985 Follow-Up of the 1975 Baseline Survey*', Wellington.
- Department of Labour (Various years), '*Labour and Employment Gazette: Official Journal of the Department of Labour*', Wellington.
- Dukes, R.L. and Martinez, R. (1994), 'The Impact of Ethgender on Self Esteem Among Adolescents', *Adolescence*, vol. 29, no. 113, pp. 105-15.
- Edwards, B. (1999), 'Radio Interview: David Baragwanath', *Top O' the Morning*, January 8<sup>th</sup>.
- England, P. (1992), '*Comparable Worth: Theories and Evidence*', Aldine De Gruyter, New York.
- European Commission (1994), '*Leave arrangements for Workers with Children: A review of Leave Arrangements in the Member States of the European Community and Austria, Finland, Norway and Sweden*', European Commission Network on Childcare and other Measures to Reconcile Employment and Family Responsibilities for Women and Men, Brussels.
- Filer, R. K. (1985), 'Male -Female Wage Differences: The Importance of Compensating Differentials', *Industrial and Labor Relations Review*, vol. 38, no. 3, pp. 426-37.

- Fowler, P. (1997), 'Study Shows Gap in Science Learning Between Sexes', Press Release: Ministry of Education, [www.newsroom.co.nz/stories/GE9703/S00026.htm](http://www.newsroom.co.nz/stories/GE9703/S00026.htm).
- Galtry, J. and Callister, P. (1995), 'Birth and the Early Months: Parental Leave and Paid Work', in Callister, P., Podmore, V., Galtry, J. and Sawicka, T. (ed), *'Striking a Balance: Families, Work, and Early Childhood Education'*, New Zealand Council for Educational Research, Wellington.
- Gendall, P. (1997), 'The Role of Government and Work Orientation', International Social Survey Programme, Department of Marketing, Massey University, Palmerston North.
- Goldin, C. (1990), *'Understanding the Gender Gap: An Economic History of American Women'*, Oxford University Press, New York.
- Gwartney-Gibbs, P.A. (1988), 'Sex Segregation in the Paid Work Force: The New Zealand Case', *Australian and New Zealand Journal of Sociology*, vol. 24, no. 2, pp. 264-78.
- Habgood, R. (1992), 'Women's Oppression: Born in the Family or Brought Home With the Pay Packet?', in Armstrong, N., Briar, C. and Brooking, K. (ed), *'Women and Work Conference: Directions and Strategies for the 1990's'*, Massey University, pp. 109-15.
- Halpern, D.F. (1997), 'Sex Differences in Intelligence: Implications for Education', *American Psychologist*, vol. 52, no. 10, October, pp. 1091-102.
- Harkin, C. (1981), 'Job Segregation: Trends in the 1970's', *Employment Gazette*, December, pp. 521-29.
- Harkin, C. (1992), 'Explaining Trends in Occupational Segregation: The Measurement, Causes and Consequences of the Sexual Division of Labour', *European Sociological Review*, vol. 8, no. 2, pp. 127-52.
- Harris, L. (1997), *'The Metropolitan Life Survey of the American Teacher 1997: Examining Gender Issues in Public Schools'*, Louis Harris and Associates, New York.
- Holdstock, L. (1998), 'The Ratio of male to Female Undergraduates', in Radford, J., (ed): *Gender and Choice in Education and Occupation*, pp. 59-83.
- Horsfield, A. (1988), *'Women in the Economy'*, Ministry of Women's Affairs, Wellington.
- Hume, R. (1993), 'Paid in Full? An Analysis of Pay Equity in New Zealand', *Auckland University Law Review*, vol. 7, no. 2, pp. 471-82.

- Hyman, P. (1993), 'Equal Pay for Women After the Employment Contracts Act: Legislation and Practice - the Emperor with No Clothes?', *New Zealand Journal of Industrial Relations*, 18 (1), pp. 44-57.
- Hyman, P. (1994), '*Women and Economics: A New Zealand Feminist Perspective*', Bridget Williams Books Ltd, Wellington.
- Hyman, P. (1981), 'Review Article: Women and Pay', *New Zealand Journal of Industrial Relations*, vol. 6, no. 2, pp. 79-89.
- Hyman, P. (1994), '*Women and Economics: A New Zealand Feminist Perspective*', Bridget Williams Books Ltd, Wellington.
- Jacobs, J. (1989), 'Long-Term Trends in Occupational Segregation by Sex', *American Journal of Sociology*, vol. 95, no. 1, pp. 160-73.
- Jacobsen, J. P. (1998), '*The Economics of Gender: Second Edition*', Blackwell Publishers, Oxford.
- Jacobsen, J. P. and Levin, L. M. (1995), 'Effects of Intermittent Labor Force Attachment on Women's Earnings', *Monthly Labor Review*, vol. 118, no. 9, September, pp. 14-19.
- Kirkwood, H. (1998), '*Exploring the Gap: An Exploration of the Difference in Income Received from Wages and Salaries by Women and Men in Full-Time Employment*', Statistics New Zealand, Wellington.
- Kleinfeld, J. (1998), '*The Myth that Schools Shortchange Girls: Social Science in the Service of Deception*', The Women's Freedom Network, Washington.
- Lee, V.E, Chen, Z., and Smerdon, B.A. (1996), '*The Influence of School Climate on Gender Differences in the Achievement and Engagement of Young Adolescents*', American Association of University Women Educational Foundation, Washington D.C.
- Lindow, J., Marrett, C., and Wilkinson, L.C. (1985), Overview. In L.C., Wilkinson & C.B. Marrett (Eds.), '*Gender Influences in Classroom Interaction*', (pp. 1-15), Academic Pres, Orlando, FL.
- Loney, M. (1999), 'Equity Ruling Shows Courts in Grip of Radical Feminism', *National Post Online*, October 20<sup>th</sup>,  
<http://www.nationalpost.com/story.asp?f=991020/106039.html>
- Love, B. T. A. (1993), 'Justifying Affirmative Action', *Auckland University Law Review*, vol. 7, no. 2, pp. 491-500.
- Mason, R. (1998), '*Recruitment of Women Re-Entering the Labour Market After Absence due to Family Responsibilities*', Massey University, Palmerston North.

- McConnell, C.R, Brue, S.L. (1995), *'Contemporary Labor Economics'*, Fourth Edition, McGraw-Hill Companies Inc, Singapore.
- McKenna, E. P. (1997), *'When Work Doesn't Work Anymore'*, Delacorte Press, New York.
- Melkas, H. and Anker, R. (1998), *'Gender Equality and Occupational Segregation in Nordic Labour Markets'*, International Labour Office, Geneva.
- Mincer, J. and Polachek, S. W. (1974), 'Family Investments in Human Capital: Earnings of Women', *Journal of Political Economy*, 82, March, pp. S76-S108.
- Mincer, J. and Ofek, H. (1982), 'Interrupted Work Careers: Depreciation and Restoration of Human Capital', *Journal of Human Resources*, vol. 17, no. 1, pp. 3-24.
- Ministry of Education (Various years), *'Education Statistics of New Zealand'*, Wellington.
- Ministry of Education (1996), *'1996 New Zealand Schools Nga Kura o Aotearoa'*, Wellington.
- Ministry of Education (1997), *'1997 New Zealand Schools Nga Kura o Aotearoa'*, Wellington.
- Moir, H.V.J. (1977), 'Segregation in the New Zealand Labour Market', *Pacific Viewpoint*, vol. 18, no. 1, pp. 104-9.
- Näsman, E. (1990), 'The Importance of Family Policy for Fathers' Care of their Children', *Men as Carers for Children: Report on an EC Childcare Network Technical Seminar Glasgow*, European Commission Childcare Network, Brussels.
- Neumark, D. and Korenman. (1994), 'Sources of Bias in Women's Wage Equations: Results Using Sibling Data', *Journal of Human Resources*, vol. 29, pp. 379-405.
- New Zealand Alliance Party (1999), *'Women Better Qualified, But Earnings Gap Still Big'*, Press Release, 9 March, <http://www.newsroom.co.nz/stories/PO9903/S00181.htm>.
- New Zealand Council of Trade Unions (1997), *'Closing The Gap'*, Wellington.
- New Zealand Council of Trade Unions (1998), *'CTU Sends Challenge to the Government'*, Media Release, 3<sup>rd</sup> April, <http://www.newsroom.co.nz/stories/GE9804/S00012.htm>.
- New Zealand Government (1997), *'Closing the Pay Gap is in Individual Hands'*, Media Release, 20<sup>th</sup> October, <http://www.newsroom.co.nz/stories/PO9710/S00263.htm>.



- New Zealand Government (1998), '*UN Committee Positive About NZ Report*', Press Release, 9<sup>th</sup> July, <http://www.newsroom.co.nz/stories/PO9807/S00168.htm>.
- New Zealand Vice Chancellors' Committee (1975-1993), '*Graduate Employment in New Zealand: A Summary of Destinations*', Wellington.
- New Zealand Vice Chancellors' Committee (1996 and 1997), '*University Graduate Destinations*', Wellington.
- NOW Legal Defense and Education Fund (1986), '*The 1986 PEER Report Card: A State-by-State Survey of the Status of Women and Girls in America's Schools*', Policy Paper no. 5, Washington D.C.
- Paul, E. F. (1989), '*Equity and Gender: The Comparable Worth Debate*', Transaction Publishers, New Jersey.
- Organisation for Economic Co-operation and Development (OECD) (1980), '*Women in Employment*', Paris.
- Poot, J. and Siegers, J. J. (1992), 'An Economic Analysis of Fertility and Female Labour Force Participation in New Zealand', *New Zealand Economic Papers*, no. 26 (2), pp. 219-48.
- Radford, J. (1998), '*Gender and Choice in Education and Occupation*', Routledge, London.
- Radford, J. and Holdstock, L. (1993), 'What Students Want: Objectives of First-Year Psychology Students in Ireland, Norway, Portugal, Spain and the United Kingdom', *Psychology Teaching Review*, vol. 2, pp. 39-49
- Radford J. and Holdstock, L. (1995a), 'Does Psychology Need More Boy Appeal?', *The Psychologist*, vol. 8, pp. 21-4.
- Radford J. and Holdstock, L. (1995b), 'Gender Differences in Higher Education Aims Between Computing and Psychology Students', *Research in Science and Technological Education*, vol. 13, pp. 163-76.
- Rhoads, S. E. (1993), '*Incomparable Worth: Pay Equity Meets the Market*', Cambridge University Press, Cambridge.
- Rubery, J., and Tarling, R. (1988), 'Women's Employment in Declining Britain', in Rubery, J., (ed): '*Women and Recession*', Routledge and Kegan Paul, London, pp. 100-32.
- Sadker, M. and D. (1990), 'Confronting Sexism in the College Classroom', in Gabriel, S. L. and Smithson, I., (ed): '*Gender in the Classroom: Power and Pedagogy*', pp. 176-87.

- Sandqvist, K. (1987), 'Fathers and Family Work in Two Cultures: Antecedents and Concomitants of Fathers' Participation in Childcare and Household Work', *Studies in Education and Psychology* 23, Doctoral Dissertation, Stockholm Institute of Education, Department of Educational Research/Almqvist & Wiksell International, Stockholm.
- Schoen, C., Davis, K., Collins, K.S., Greenberg, L., Des Roches, C., and Abrams, M. (1997), *The Commonwealth Fund Survey of the Health of Adolescent Girls*, The Commonwealth Fund, New York.
- Schwartz, F. N. (1989), 'Management Women and the New Facts of Life', *Harvard Business Review*, vol. 67, no. 1, pp. 65-76.
- Scollay, R., St John, S. and Horsman, J. (1994), *Macroeconomics: Principles and New Zealand Policy Issues*, Longman Paul, Auckland.
- Shapiro D. and Mott, F. L. (1994), 'Long-Term Employment and Earnings of Women in Relation to Employment Behaviour Surrounding the First Birth', *The Journal of Human Resources*, vol. 29, no. 2, pp. 249-75.
- Shaw, L.B., and Shapiro, D. (1987), 'Women's Work Plans: Contrasting Expectations and Actual Work Experience', *Monthly Labor Review*, 110, November, pp. 7-13.
- Siltanen, Janet, Jarman, J, and Blackburn, R. (1995), *Gender Inequality in the Labour Market: Occupational Concentration and Segregation. A Manual on Methodology*, ILO, Geneva.
- Skiffington, L. (1997), 'Employment Equity: Unfinished Business?', in New Zealand Council of Trade Unions (ed), *Closing the Gap*, CTU, Wellington, pp. 65-86.
- Sloan, J., and Doust, J. (1988), *The Female-Male Gap in New Zealand: Evidence and Policies*, National Institute of Labour Studies Inc.,
- Sloane, P.J. (1980), *Women and Low Pay*, New York.
- Smith, D.F. (1981), 'Assessing the Growth of New Zealand's White-Collar Workforce', *Australian and New Zealand Journal of Sociology*, vol. 17, no. 2, pp. 77-84.
- Smith, D.F. (1983), 'Occupational Segregation amongst White-Collar Workers in New Zealand', *New Zealand Economic Papers*, no. 17, pp. 37-49.
- Smithson, (1990), 'Introduction: Investigating, Gender, Power, and Pedagogy', in Gabriel, S. L. and Smithson, I., (ed): *Gender in the Classroom: Power and Pedagogy*, pp. 1-27.

- Stafford, F. P. and Sundström, M. (1994), '*Time Out for Childcare and Career Wages for Men and Women*', Paper Presented at the Sixth Annual Conference of the European Association of Labour Economists, Warsaw.
- Statistics New Zealand. (Various years), '*Key Statistics*', Wellington.
- Statistics New Zealand (Various years), '*New Zealand Census of Population and Dwellings*', Wellington.
- Statistics New Zealand. (as at 1999), '*PC INFOS database*', Wellington.
- Statistics New Zealand (1997), '*Household Labour Force Survey*', September, Wellington.
- Statistics New Zealand (1998), '*New Zealand Now: Families and Households*', Wellington.
- Statistics New Zealand (1998a), '*New Zealand Official Yearbook*', Wellington.
- Statistics New Zealand (1999), '*New Zealand Now: Women*', Wellington.
- Stratton, L. S. (1995), 'The Effect Interruptions in Work Experience Have on Wages', *Southern Economic Journal*, vol. 61, no. 4, pp. 955-70.
- Stricker, L.J., Rock, D.A., and Burton, N.W. (1993), 'Sex Differences in Predictions of College Grades From Scholastic Aptitude Scores', *Journal of Educational Psychology*, 85, pp. 710-18.
- Tarling, R. (1988), 'Women's Employment in Declining Britain', in Rubery, J. (ed.), '*Women and Recession*', Routledge and Kegan Paul, London, pp. 100-32.
- Tashakkori, A. (1993), Gender, Ethnicity, and the Structure of Self-Esteem: An Attitude Theory Approach', *Journal of Social Psychology*, vol. 133, no. 4, pp. 479-88.
- Tashakkori, A., and Thompson, V.D. (1991), '*Race Differences in Self-Perception and Locus of Control During Adolescence and Early Adulthood: Methodological Implications*', Genetic, Social, and General Psychology Monographs, vol. 117, pp. 133-52.
- The Nelson Mail (1999), '*Progress for Women*', Editorial, 10 March, Edition 2, p. 13.
- Tobin, K., and Garnett, P. (1987), 'Gender-related Differences in Science Activities', *Science Education*, vol. 71, no. 1, pp. 91-103.
- Van Mourik, A.V., Poot, J. and Siegers, J.J. (1989), 'Trends in Occupational Segregation of Women and Men in New Zealand: Some New Evidence', *New Zealand Economic Papers*, vol. 23, pp. 29-50.

- Vancouver Sun (1999), '*Universities Hiring, But White Males Need Not Apply*', 17<sup>th</sup> September.
- Wade, T.J., Thompson, V.D, Tashakkori, A., and Valente, E. (1989), 'A Longitudinal Analysis of Sex by Race Differences in Predictions of Adolescent Self-Esteem', *Personality and Individual Differences*, 10, pp. 717-29.
- Waldfogel, J. (1995), 'Easing Labour Pains', *New Economy*, vol. 2, no. 1, p. 42-6.
- Waldfogel, J. (1997), 'Working Mothers Then and Now: A Cross-Cohort Analysis of the Effects of Maternity Leave on Women's Pay', in Blau, F. D. and Ehrenberg, R. G., Eds. '*Gender and Family Issues in the Workplace*', Russell Sage Foundation, New York, pp. 92-126.
- Weinreich-Haste, H. (1979), 'What Sex is Science?', in Hartnett, O., Boden, G. and Fuller, M., Eds. '*Women: Sex Role Stereotyping*', Tavistock, London.
- Weinreich-Haste, H. (1981), 'The Image of Science', in Kelly, A, Ed. '*The Missing half: Girls and Science Education*', Manchester University Press, Manchester.
- Werneke, D. (1978), 'The Economic Slowdown and Women's Employment Opportunities', *International Labour Review*, vol. 51.
- Wilson, M. (1999), '*Facing the Millennium: A Few Thoughts on Women in the Legal Profession*', New Zealand Law Conference, Rotorua.
- Wittig, M. A. and Lowe, R. H. (1989), 'Comparable Worth Theory and Policy', *Journal of Social Issues*, vol. 45, no. 4, pp. 1-21.
- Wood, R. G., Corcoran, M. E. and Courant. (1993), 'Pay Differences Among the Highly Paid: The Male-Female Earnings Gap in Lawyers' Salary', *Journal of Labor Economics*, vol. 11, no. 3, pp. 417-41.