

# ***Socio-economic Factors and the Fertility of New Zealand Women***

**A study of data from the  
New Zealand 1996 Census of Population and Dwellings**

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## *Preface*

Socio-economic Factors and the Fertility of New Zealand Women is the first of three publications which set out to analyse some aspects of the data on the number of children born to women enumerated in the 1996 Census of Population and Dwellings. It is followed by a separate study of the relationship between ethnicity and fertility and how this contributes to the ethnic fabric of New Zealand life. The third study concerns the geography of fertility in which we consider spatial differentials in greater detail.

This volume examines the data and its background, looking especially at issues related to data sources and data quality. A brief consideration is given to the relationship between census data and vital statistics data. The data is then examined in relation to selected socio-economic characteristics of the respondents to identify some of the underlying relationships between these and fertility. We also consider the socio-economic consequences of fertility trends as reflected in the census data.

This report was written by Robert Didham, with assistance from Emma Gee, Bill Boddington, and Kirsten Nissen, under the direction of Mansoor Khawaja, Chief Demographer. I would like to acknowledge my appreciation to the author, and to Senior Advisor Sharon Evans, and Mary-Anne Hayes of Social Policy Division and members of Demography Division, who reviewed this report and made helpful suggestions.



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## Chapter 1

# Introduction

## 1.1 Background

Changes in fertility are important, since these materially affect how we interpret population structure and dynamics, and these changes can occur within a quite short time-period. In line with the expectations of most population commentators of the day, the *1965 New Zealand Yearbook* reported that New Zealand's population would almost double to reach 5.132 million by the year 2000. Thirty-five years on, entering a new century, our population stands at 3.826 million, less than three-quarters of the 1965 expectations. Given current growth dynamics, it is now not expected that New Zealand's population will ever reach five million. Should this rapid shift in the pattern of population growth have been foreseen?

The last half-century has seen some dramatic and largely unexpected changes. In particular there was a dramatic fall in fertility as infant mortality dropped sharply. Shortly after this trend became established, the contraceptive pill<sup>1</sup> was introduced, though expensive and not widely available for some time. Along with war-time changes in social structures, there were sharp increases in female participation in the labour force. None of this was entirely new, of course. Debates on exactly these factors had raged throughout the 1930s. Contraception became an increasingly important issue, with major international research and increasing public knowledge throughout the 1950s. Women's involvement in the labour force had already become widespread as a result of the war effort. These factors directly affected the timing and the speed of the transition from post-World War II fertility to the sub-replacement fertility patterns of the late 20th century.

Low fertility rates have become the norm in a large number of countries. This has been indirectly pointed to by Foster in her comparison of the 1930s with the present period. As she points out, "a question of concern to demographers today, as it was in the 1930s, is how low fertility can fall and whether, given true choice in the matter for the first time in their history, humans might cease reproducing altogether because of the very high physical, psychological, temporal, and financial costs involved in raising children" (Foster, 2000, 209). Many studies imply that the drivers towards lower fertility have their limit at a fertility of zero. However, one important component of lower fertility is the proportion of women who have no children. As with the effect of infant mortality on life expectancy, zero parity women have a proportionally greater effect on fertility rates than women with children. In other words, fertility rates fall faster if fewer women choose to have children than if women choose to have fewer children. When both things happen at the same time, fertility rates fall very fast.

While past migration assumptions may have been slightly high, they cannot be blamed for the failure to predict a sudden shift in population growth. This is an instance of assumptions about future fertility having gone awry. Population analysts at the time expected that the relatively large families and near universal marriage and childbearing of the 1950s and early 1960s would continue. This assumption was based solely on analysis of period fertility tables derived from the vitals registration system, constrained by the fact that it only revealed limited information about women giving birth in a particular year. The major, and at the time unquestioned, social factor which defined the context of these projections was the very close association between marriage and pregnancy which had appeared to pertain for the two and a half decades from the beginning of the baby-boom in the mid-1930s. There was also at the time a resurgence in popularity of the Malthusian paradigm whereby continued unchecked and uncheckable growth was assumed. Such considerations as natural limiting factors other than age were not seen to apply to the most basic component of growth, the fertility of women. Had the dynamics of family formation and childbearing been more widely researched within New Zealand and overseas, population forecasts might have been more accurate.

The re-inclusion of a question on the number of children in the 1996 Census of Population and Dwellings was at least in part an acknowledgement of the need for more analysis of the dynamics of family formation and childbearing and of the limitations of analysis based solely on data collected on birth registration forms.

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<sup>1</sup> One should however be exceedingly careful about making a direct linkage between the introduction of the Pill and the simultaneous shift in fertility. The case of Italy will illustrate this, where, in spite of strong opposition to contraception, sub-replacement fertility has reigned for over three decades, with a total fertility rate now around 1.2 at a national level and well under 1.0 in some subnational areas (Istituto Nazionale di Statistica, 2000). It is highly probable that the two events are responses to a different, but common, set of conditions.

## **1.2 Objectives and scope**

This is the first of a series of three research reports planned to analyse aspects of the fertility data which have flowed from the 1996 Census results. It discusses some aspects of the census data obtained from women aged 15 years and over, particularly by the question on the number of children, and looks at the socio-economic characteristics of these women. A detailed analysis of this data is a desideratum since it provides an understanding of some of the drivers for population change. While the primary focus here is on the national level, the relationship between socio-economic factors and fertility at the subnational level is important, as spatial differentials are significant. We therefore also look at some inter-relationships between fertility and the geographic and ethnic spaces. There is also a consideration of childfree women, an increasingly important social component.

## Chapter 2

# Background to Data Sources and Data Quality

## 2.1 Previous census questions

A question relating to childbearing has been asked, in one form or another, in eight New Zealand Censuses of Population and Dwellings – 1911, 1916, 1921, 1945 (Māori schedule only), 1971, 1976, 1981 and 1996. However, the questions have varied widely both in content and in the subject population.

In 1945 a question was included in the Māori schedule only. This meant that people of European descent and South Island Māori were not asked, thus the results only related to a small proportion of the population and even then applied only to married women. In earlier censuses (1911, 1916 and 1921) the question was asked of “now-married” females in the European schedule, and enquired about “children born alive to [the respondent’s] present marriage”.

In the 1971 Census “ever-married” females were asked to state the number of children born alive “during their lifetime” (Morrison, 1991). This was the first New Zealand census in fifty years to question all adult females about the number of children they had given birth to, albeit only if the female was married at the time of the census or had ever been married. There was an explicit assumption at the time that ex-nuptial fertility was negligible or, indeed, that it would not be reported. The question asked for the number of children born alive to the woman. Mothers who had never married were not required to answer the question. The resulting information was used in an analysis of fertility differentials, which was reported in two companion articles (Department of Statistics, 1978a, 1978b).

In 1976, the question referred to children born alive “while [the mother was] married”. It was not until 1981 that all females over the age of 15 were asked about all of their live births. This was repeated in 1996, but for the first time ever in a New Zealand census, women were given the option to object to answering this question.

The reference to marriage (currently married/ever married) was removed from the 1981 and 1996 Census questions because it was recognised that marriage had lost its former centrality as a principal fertility regulating mechanism (Department of Statistics, 1986), though this was a publicly controversial issue in 1981. The relationship between childbearing and formal marriage rapidly decreased. Some international studies report furthermore that, in the past, marriage generally was taken to mark the beginning of exposure to the risk of conception (United Nations, 1992) just as, in other cases, conception marked the beginning of exposure to the risk of marriage.

## 2.2 Data sources – the 1996 Census question

The primary data source for this study is the 1996 Census of Population and Dwellings. This data was collected by a question (Figure 1) on the number of children born to women aged 15 years and over.

Supplementary data sources are the birth registrations data from vital statistics, and abortion data. However, a detailed analysis of the inter-relationship between these data sources is beyond the scope of the present study.



Table 1

**Number of Children by Age Group of Mother**

Number of Children	Age Group of Mother (Years)					Total
	15-24	25-34	35-44	45-64	65 and Over	
No children	206,490	103,863	34,761	30,840	30,153	406,104
One child	21,486	49,431	27,891	22,551	21,012	142,371
Two children	8,661	61,143	86,217	94,803	47,412	298,236
Three children	2,142	30,327	59,361	86,910	45,294	224,034
Four children	435	11,355	24,834	47,892	32,076	116,592
Five children	69	3,480	8,049	19,452	16,569	47,619
Six children	27	1,236	3,285	9,531	9,150	23,226
Seven children	3	519	1,668	4,764	4,521	11,469
Eight children	0	195	675	2,733	3,120	6,726
Nine children	0	30	162	1,143	1,338	2,673
Ten or more children	0	90	294	1,749	2,640	4,773
Object to answering	9,402	14,892	14,709	21,315	11,622	71,940
Not stated	17,616	15,324	13,620	18,288	15,645	80,496
Total	266,331	291,882	275,520	361,971	240,552	1,436,256

All cells in this table have been randomly rounded to base 3.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

The families in which these women are coded may or may not include all or any of their own children. In some cases children may not live at home with their mother, or they have died or have grown up and moved into their own homes. They may also have adopted children. Moreover, many women now live in blended families containing children of a male or female partner by a previous relationship.

Table 2

**Female Parents or Partners in Families by Number of Children and Number of Children in the Family**

Number of Children	Number of Children in Family						Total
	None	One	Two	Three	Four	Five or More	
No children	118,281	6,255	2,889	663	195	99	128,382
One child	19,272	90,579	4,194	981	219	99	115,350
Two children	66,585	39,390	138,399	4,110	813	252	249,552
Three children	58,827	29,379	25,677	66,234	2,004	456	182,577
Four children	33,450	14,967	9,960	10,416	20,082	1,137	90,012
Five children or more	25,926	13,275	7,938	5,619	5,091	9,321	67,170
Specified total	322,338	193,845	189,063	88,026	28,404	11,367	833,037
Not stated	25,830	17,412	13,155	5,937	2,136	1,161	65,634
Total	348,168	211,257	202,218	93,963	30,540	12,528	898,671

All cells in this table have been randomly rounded to base 3.

Source: 1996 Census of Population and Dwellings

In blended families, it is likely that many children will have not differentiated between mothers and stepmothers in their census responses, with the result that we will not be able to identify how many children currently living in any family of this type are the natural children of the woman. In the case of female same-sex couples with children, we may not be able to identify which partner is the mother of which children.

Of the 833,037 women parents or partners in families who specified the number of children to which they had given birth (Table 2), around 53 percent lived in families with the same number of children as they had given birth to. These are predominantly women with younger families. However, even though the families may have the same number of children, there is no way of determining from the data that they are all their own children rather than children of other partnerships.

Thus, family-based data should be viewed with caution. Women in partnerships may be quite different in profile than the rest of the adult female population. We know that there are some differences – for example the non-response rate for number of children is more than twice as high among women not coded into families as it is for those who are. For this reason, women coded into families should be treated as a special group rather than representative of all women.

The subject population in vital statistics is, simply, all women who gave birth, married, or died in any selected period of time. The data does not include any women who did not undergo any of the vital events in that time period. Abortion data relates to those women obtaining a legally induced abortion in accordance with the procedures set out in the Contraception, Sterilization and Abortion Act of 1997 (and its predecessors) during any selected period. They do not include any spontaneous abortions (miscarriages) or stillbirths, nor do they include illegal abortions or abortions performed on New Zealand residents while overseas.

## 2.4 Data quality

As is common with all demographic data sets, there are some data quality issues which need to be taken into account in the analysis of the data. Data quality issues fall into two fundamental categories: issues relating to the responses we have and those relating to the responses we do not have. The latter can be differentiated between non-response (failure to answer the relevant question(s)) and non-compliance (when the whole record is missing). In the latter case, non-compliance may be either deliberate (people avoiding enumeration) or inadvertent (accidentally missed by enumerators). Babies and young adults<sup>4</sup> are more likely than other age groups to have been missed.

Women in the youngest (15-24 years) and oldest (75 years and over) ages were the most likely to not specify the number of children (6.6 and 6.7 percent respectively) but the least likely to object to answering (3.5 and 4.4 percent respectively). Conversely, women in the middle ages (40-59 years) were more inclined to object (5.8 percent) than to not specify an answer (4.9 percent). Overall the total level of non-response among enumerated women was 10.6 percent (152,434).

Among the responses we have gathered, we need to be aware that quality issues exist resulting either from their accuracy or their correct capture. A number of factors contribute to these quality issues, but this report assumes that they do not materially affect our analysis.

## 2.5 Non-response

In any census there will be a level of non-response. Non-response refers to cases where people are recorded in the dataset but have, for whatever reason, failed to record a response for particular questions<sup>5</sup>. If non-response occurred uniformly throughout the data, it would not be a particular issue. Unfortunately it does not.

In the 1996 Census, there were 71,940 women who objected to stating how many children they had given birth to and a further 80,496 for whom we have no response at all. This is a significant proportion (10.6 percent) of the 1,436,256 women usually resident in New Zealand aged 15 years and over.

In this report, we discuss those women who did provide a numerical response. When it is important to have the whole usually resident subject population, for example when comparing census and vitals data, the approach is to prorate the non-respondents in, based on national level distributions. However, this assumes that those who objected and those who did not respond each form a group homogenous with those who did respond.

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4 The Post-Enumeration Survey following the 1996 Census found that around 2.1 percent of young adults aged 15-29 years (with a margin of error of 0.5 percent) were missed by the census (Statistics New Zealand, 1998b, 20). The sample was too small to split this by sex, but it is assumed that women were less prone to undercount than men in this age group.

5 In some cases, this non-response occurs in records which were inserted when census staff were confident that a person or dwelling existed but were unable to secure a completed form. These dummy records cannot simply be ignored in the analysis since they are not smoothly distributed either geographically or socio-economically, and their inclusion gives a much better understanding of the subject population. However, care is needed when intercensal comparisons are made since the number of records created and the methodology used varies greatly between censuses.

Table 3

**Relationship between Specified Ethnicity and Specified Number of Children**

Ethnicity	Number of Children			
	Specified	Object to Answering	Not Specified	Total
Ethnicity specified	1,273,929	70,677	32,988	1,377,597
Ethnicity not specified	9,894	1,260	47,508	58,662
Total	1,283,823	71,940	80,496	1,436,256

All cells in this table have been randomly rounded to base 3.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

A number of factors affect the level of non-response, and this may vary from question to question according to factors such as age, ethnicity, language skills or parity of the woman. As an example, for women who did respond to the fertility question, fewer than 6 percent (of English-speaking women of European<sup>6</sup> ethnicities) with no children failed to specify their school qualifications. However, the proportion failing to specify their school qualifications rose to nearly 11 percent in the group of English-speaking women of European ethnicities with three or more children and to over 12 percent for the women who objected to answering the question. A similar pattern is seen among English-speaking women of Māori ethnicity (6.5, 11 and 13 percent respectively), Pacific ethnicities (8, 16 and 14 percent respectively) and Asian ethnicities (15, 20 and 19 percent respectively). In every case, as expected, women who did not speak English showed much higher rates of non-response than their English-speaking counterparts.

To illustrate this issue, we compare non-response for the question about the number of children with non-response to the ethnicity question. The comparison shows the effect on analysis when non-response is not uniform within datasets. In the 1996 Census, the level of non-response for ethnicity was quite different from that for the number of children (Table 3). In addition, the patterns for fertility varied according to age, location and ethnicity.

Table 4

**Average Number of Births per Woman per Annum**

	Ethnicity			
	European	Pacific	Asian	Māori
Average number of births per woman per annum				
a. Based on population with specified ethnicity only	0.034	0.102	0.059	0.076
b. Simple proration (see text)	0.032	0.098	0.057	0.073
c. Prorated at area unit level by age	0.032	0.095	0.057	0.072
Percentage decrease in apparent fertility				
Percentage change a to b	4.08	4.08	4.08	4.08
Percentage change a to c	3.84	6.59	4.24	5.09

Source: Based on 1996 Census of Population and Dwellings and 1999 Vital Statistics

In cases where we take different data sets with different levels of non-response, we find that ignoring non-response is much more significant than when the analysis is within a single dataset. To demonstrate this, data was taken from the 1996 Census and from vital statistics for the latest year available at the time (1999). A ratio was then derived to arrive at an average number of births per woman per annum. The numerator consisted of the number of mothers who gave birth during 1999 who specified their ethnicity (the not specifieds were ignored here as there were only 80 out of a total of 57,053 cases). The denominators used comprised the total adult female usually resident population with ethnicity prorated by selected methods to show the effect that prorating the not specifieds have on the rates. The results can be seen in Table 4.

<sup>6</sup> The term "European" here refers to both New Zealand European ethnicity and other European ethnicities.

As can be immediately seen from this table, the method of pro-rating materially affected the outcomes for both Māori (5.09 percent compared with 4.08 percent) and Pacific peoples (6.59 percent compared with 4.08 percent), while failure to account for the non-responses had a significant and varying effect on each group. For European and Asian women the difference is small.

This issue is discussed in more detail in the forthcoming paper on ethnicity and fertility.

## 2.6 Issues with vital statistics data

From New Zealand vital statistics data, for any period of time, we have the age at which women are giving birth, the parity of those births relative to the partnership she is in at the time and the age of the father, if a father is recorded. We can also analyse the ethnicity, in many cases, of the mother, child and (when recorded) father at the time of the birth, which is not possible using census data, which gives this information at the time of census. On the other hand, this data gives no other information, except for location.

New Zealand vital statistics data is not true parity data. Parity was collected only relative to the current marriage (prior to 1991) or relationship (from 1995). In addition, from the early 1980s coders were routinely coding parity according to marriage date and any birth(s) close to the marriage date were recorded as first births regardless of stated previous issue of that relationship. This will have had some impact on the data for older age groups.

Throughout the 1980s and 1990s, almost all women under 25 years of age who married did so for the first time, and it is unlikely that a significant proportion of these women would have had multiple previous partnerships resulting in childbirth. This means that we can cautiously treat the parity data for this age group and marital status as true parity data.

This does not hold so securely for older age groups. The number of New Zealand-born women aged 25-29 years marrying for a second or subsequent time was less than 30 percent in the early 1980s, though this fell to substantially below 10 percent in the late 1990s, largely as a result of the rising age of first marriage. Notwithstanding, this percentage rises sharply with age. Around 90 percent of women aged 45 years and over who married were moving into at least their second formal marriage.

## 2.7 Data limitations

Census data will be our primary data source, but this will be occasionally supplemented or contrasted, when appropriate, with other data sources such as vital statistics. We consider in this paper the propensity for women to have children or not, and the number of children a woman has relative to such factors as family formation, labour force status, income and educational experiences.

It is critically important to understand that the relationship between these factors may operate in both directions or in one direction only. For example, income stated at the time of census provides information on some aspects of the consequence of childbearing. Since we have not measured income at the time of the birth, let alone the income at the time of conception or at the time the decision was made to have a child or more children, we do not have information which could tell us how income affects fertility decisions.

From 1996 Census data we have the total number of children a woman has given birth to at the time of the census. This is quite a different piece of information from the number of children born to the current relationship, which other collections gather. It also enables us to associate several types of information about the mother and (often) the family in which she is coded at the time of the census. Unlike birth statistics, census data also includes women who have not had any children – a particularly important group, as we discuss in a later chapter.

Census is limited to people in New Zealand on census night. Some women were temporarily overseas, therefore outside the scope of the census, and this group is likely to affect the data because they are unlikely to have the same profile as women who were not overseas at the time. Young adults in particular, including women with no children, are more likely to have been overseas.

In census data, we also have several pieces of important information – the relationship between the characteristics of the woman and the number of children she has given birth to; the children who happen to still be living at home on census night; her current marital status; and personal characteristics of all the people enumerated in the dwelling (which may include other families with whom she lives). Yet these do not combine to give us information on how these family structures operate in practice, nor when nor how they were formed. In other words we see the framework but not the living processes. In a very real sense we have data which has no history. In vital registrations, we have some information on the woman's current relationship, parity and age at birth at the time of the birth, but we cannot as a matter of course link this information to the mother's census information. In both data sources, we lack information about other former or concurrent partners, and, often, information about the father(s).

## Chapter 3

# Historical Context

### 3.1 Overview

Substantive research into family formation and its relationship with fertility has been accomplished based on survey work (for example, Pool and Johnstone, 1999). Family formation is never a static process in any society and, in many European societies in particular, dramatic changes occurred over the last century. Certainly we are dealing with a shift in the mix of structures – there are no new family structures – which reflects changes in acceptability of different arrangements as well as changing economic viability and social expectations associated with families over time.

The concept of family size itself is ambiguous. At one level, family size may be defined as the number of children currently living at home with the family. This has the advantage, for the analysis of family function, of including all children within the family at the time, whether or not they are the children of the female, or indeed either, partner. At another level, family refers to all members of a family whether they are currently living in the same household or not. The former definition applies to the census, which provides a snapshot in time. However, the census is conducted through a self-administered questionnaire of the entire population and it cannot record all the complexities of family structure which often operate across households.

A common type of family is the nuclear family, with a couple living together with only the children they have given birth to. But families may also include women (and men) who have had more than one partnership or are sole or adoptive parents, and may include a wide range of other relatives. Family can be more like a Venn diagram with a different scope for each member. Children or parents may no longer live in the same household. Many children will have left home or be living with former partners of their parent(s), be living at a different address or away at school, but still be to varying degree dependent on the family, or they may have returned home to care for an elderly parent.

As family size has declined in New Zealand, there has been a shift in society's expectations on parents as well as children. A smaller family has not resulted in fewer demands on parents, and in some cases has reduced the childcare options for parents, as older children are no longer available to care for the young ones. Safety issues have also changed. Once it was common for children to walk substantial distances alone to school, go to the local park to play unattended, be home alone for short periods of time until a parent returned from work or shopping, etc. Moreover, not so long ago, a child was considered privileged to have their own bedroom or to be able to call on parents for extra-curricula activities. These shifts in social expectations of parenting make it difficult, financially and physically, to return to larger families.

Interest in the relationship between fertility and legal marriage has remained high, primarily because the two are no longer directly linked to the extent they were three-quarters of a century ago. The U.S. Census Bureau, as recently as October 1999, noted that "one of the most closely watched indicators of fertility over the past thirty years is the proportion of births outside of marriage" (Bachu and Jones, 1999, 1). American women are not only increasingly likely to experience their first birth prior to their first marriage, but these births are less likely than in the past to result in a consequential marriage. This global trend has important implications for social policy and population dynamics in New Zealand.

One of the key constraints on the ultimate number of children, and indeed the decision to bear children at all, is the socio-economic environment. Following times of poverty or war, people choose to have more children to offset losses or to provide flexibility in handling future difficulties. Fertility rates tend to be high when resources are not extremely low or not overly abundant (Desbarats, 1998). When resources are abundant, there is a shift towards lower fertility to maximise individual achievement. This has historically had the effect, in normal times, of keeping fertility well below the theoretically maximum levels. A closer examination of demographic change against history throughout the 20th century shows that this explains in no small measure post-epidemic and post-pandemic recoveries, the post-Depression baby-boom, and more recently the rapid and near universal fall in fertility across all sectors of the New Zealand population.

Studies on the value of children have long suggested that care for elderly parents and grandparents requires a pool of surplus children to fill these social needs. This has tended to push fertility up slightly. But in consumer societies this need not be so, since children are not the only potential source of labour for this function. In countries such as New Zealand, well-established institutionalised care for the no-longer young and for the infirm has become as much a substitute for large families as it has been a response to falling family size as life expectancy has increased.

Increased longevity tends to lead to later onset of childbearing, which in turn has a depressive effect on the total number of children a woman may be expected to give birth to. This is already apparent in many and various societies as fertility falls and is sustained at sub-replacement levels<sup>7</sup> (in the case of Italy, for example, already for three decades). Rather than social and economic pressure to increase family size to accommodate future needs, societies are changing structurally to satisfy these needs at the state rather than family level. Moreover, the materialism of many current societies may make any substantial rise in fertility highly improbable – materialistic societies can never have a self-perceived over-abundance of resources because the goal posts keep shifting and the definition of abundance becomes itself upwardly mobile.

Given the long-term effects childbearing may have on life expectancy and elderly well-being, this would reward further research, perhaps leading on from Doblhammer's (2000) work, which considered the relationship between the number of children to which a woman has given birth and her resulting life span. Having more than three births appears to have an adverse effect on the mother, with a tendency for her to die at a younger age than her peers who have had fewer children. Nevertheless, this is a difficult area of research since the number of children is not recorded on death certificates of women. We also cannot directly link the death data with census data, so that these effects have to be deduced without knowing the demographic and health histories of the women, including the number of abortions and stillbirths she may have had which would not have been recorded.

### 3.2 The historical New Zealand context

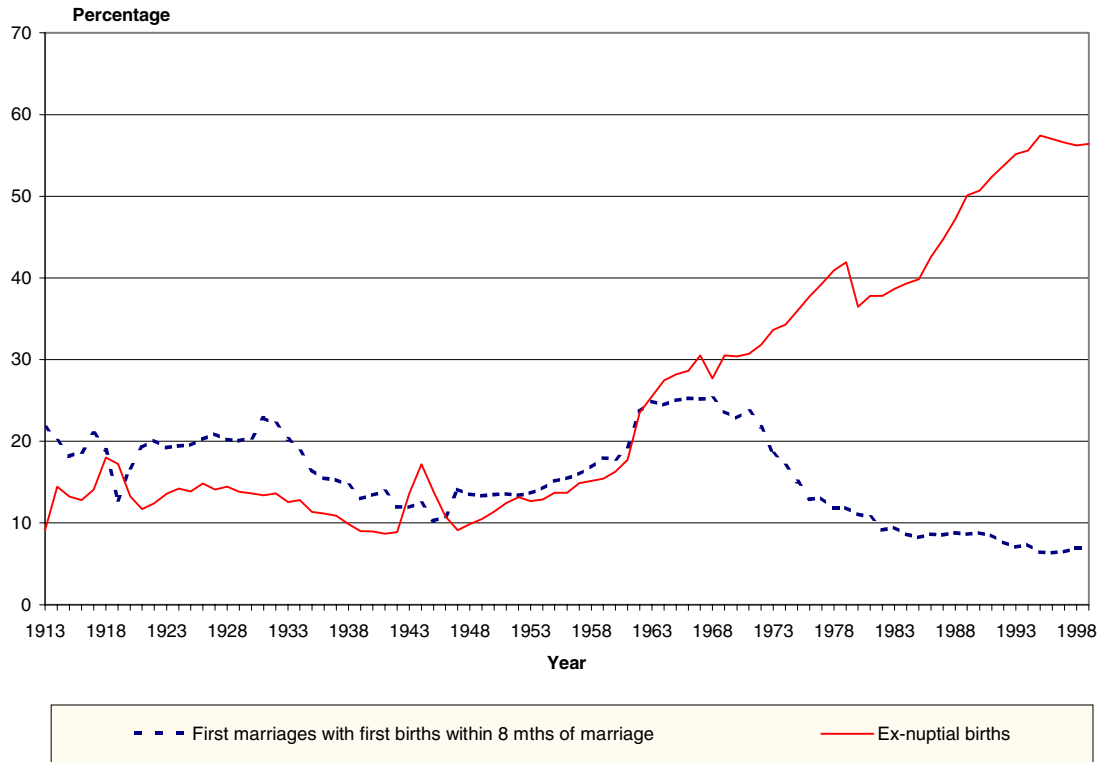
While New Zealand women increasingly experience their first birth prior to their first formal marriage with fewer births resulting in a consequential marriage, this has actually been a feature of this country's demographic history throughout the last hundred years. As Carmichael put it, "ex-nuptial childbearing was not exactly unknown in New Zealand in the past .... It was even less unusual for brides to be pregnant, especially in the 1920s" (Carmichael, 1982, 70). Throughout the first half of the 20th century, pregnant brides outnumbered ex-nuptial first births (Figure 2) because there was considerable pressure for pregnancy to precipitate marriages and the cost of weddings frequently resulted in long engagements. The social persecution of single mothers at that time was severe, and in most cases when marriage was left too late, an ex-nuptial birth was quickly followed by a marriage or adoption.

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<sup>7</sup> Note the deliberate plural. While the level is usually taken to be 2.1 births per woman, the actual replacement levels vary about this mark substantially, depending on other factors such as incidence of infant mortality, differential migration, abnormal adult sex ratios due to excess adult male or female mortality, or polygamy.

Figure 2

**Percentage of Recorded First Births Which Are Ex-Nuptial and Percentage of Marriages with a Birth within 8 Months of Marriage, 1913-1999**



**Note:** Data estimated for 1942. Due to war resource constraints, this data was not processed.

*Source:* Vital Statistics, 1913-1941, 1943-1999

Moreover, not all pregnancies, whether extramarital or not, ended in a birth. Rather than marry, many women chose abortion. There was such concern over the falling birth rate in the early-1930s, together with the rising number of maternal deaths in the mid-1930s resulting from abortions, that a Committee of Enquiry was established in 1936 under the chairmanship of D.G. McMillan. One of the key findings of this enquiry was that, at that time, at least one in five pregnancies resulted in a spontaneous, legal or illegal abortion (McMillan, 1937, 8). However, advanced pregnancies and births resulted in marriage in most cases.

From the mid-1950s a reversal of this linkage was already becoming well established. From substantially less than universal marriage, but with a close association of pregnancy and marriage, New Zealand society moved into a transitional period of high, almost universal marriage with rapidly following first births (Jain, 1972). This was followed by a period when partnerships outside of formalised legal marriage became generally accepted, although for a time a strong association between childbearing and legal marriage remained. Finally, this association has continued to evolve so that informal partnerships are tending to become the norm and the legal status of these partnerships has already, albeit only recently, moved significantly towards equality with formal marriage.

The transition from relatively large to small families within New Zealand was both long-term and complex, and was accompanied by a shift from compressed childbearing to a pattern of later timing and perhaps wider spacing, now common across Western developed countries (Pool et al, 1999). However, we are dealing with not a single transition, but an interlacing web of several simultaneous processes. The fertility experience of women born at the start of the 20th century is not dissimilar to that of the women who started their families in the mid-1970s. Thus, New Zealand's declining fertility was only interrupted by the post-Depression baby boom (1935-1965), along with the intervening exacerbating effect of the Second World War on this.

Moreover, the baby boom was restricted largely to the European population. This was not because the Māori population did not share the underlying marriage boom, but rather, because Māori were undergoing a more significant, though different, process of fertility transition. Māori fertility fell rapidly in response to improvement in infant and general mortality, and, to some lesser extent, urbanisation. More recently, the arrival of Pacific and Asian people has added further populations for whom the baby boom is an almost unknown phenomenon.

Thus, since a significant portion of New Zealand's population did not experience a baby boom, it is overly simplistic to consider the fertility transition as a single process. Nor is it entirely valid to treat these macro-groups as if they were homogenous. For example, while nearly universal marriage was the norm in many Chinese societies, as it was in many Indian societies, fertility patterns were quite different since Chinese marriages frequently occurred between partners of significantly different ages (Lee and Wang, 2000, 5), with consequential effects due to age and paternity factors. This, together with the sibling effect, kept fertility low over a very long part of China's history, in contrast to the higher fertility regimes of most of India.

Many of these issues remain the same, such as changes in the relative value of children which have had a flow-on effect on fertility. But, there have increasingly been new issues coming to the fore as well. There is an increasing number of childfree women, which is one consequence of declining fecundity. Also, the move from family to state responsibility for elderly care, and possibly changing labour force participation patterns, are increasingly central causes in fertility decline.

One increasingly important factor in the rising number of childfree women is the delay in the decision to begin childbearing. This delay may extend to the point when it is biologically too late or unwise to have children, and may be driven at least in part by the effect childcare needs have on economic options. Forty years ago, the proportion of women in New Zealand who were childfree was very small, at less than 9 percent. There had been a prevailing attitude equating childlessness with social deprivation, as Cameron (1986) has noted, and even with selfishness, as described by Veveers (1977). Earlier this century, the ideal New Zealand family was seen as three children. The maxim "one for each other and one for the nation" was commonly heard, indicating a social pressure to have more than two children. The strength of this sentiment is revealed in the McMillan Report in describing couples who chose to limit their family size as "obviously selfish" (McMillan, 1937, 16) and raised the obsolete, even by 1937, concept of "race suicide" (McMillan, 1937, 25).

More recently, though, since fertility has generally been controlled or delayed by contraception, both the proportion of women who have remained voluntarily childfree and the proportion involuntarily childfree have increased. Increasingly, the question is not when to have children but why one should or would want to do so (Cameron, 1990). For older women who do decide they want children, increasingly new questions such as, "can I still have children" and "have I left it too late to have the number of children I wanted?" are being asked. For women who are between relationships these questions become more poignant. This may lead to a wider adoption of the newer contraceptive implants and other forms of contraception, which do not lead to extended periods of infertility. This, along with emerging infertility treatments, may further change the pattern of childbearing for those in their thirties, forties and even early fifties.

## Chapter 4

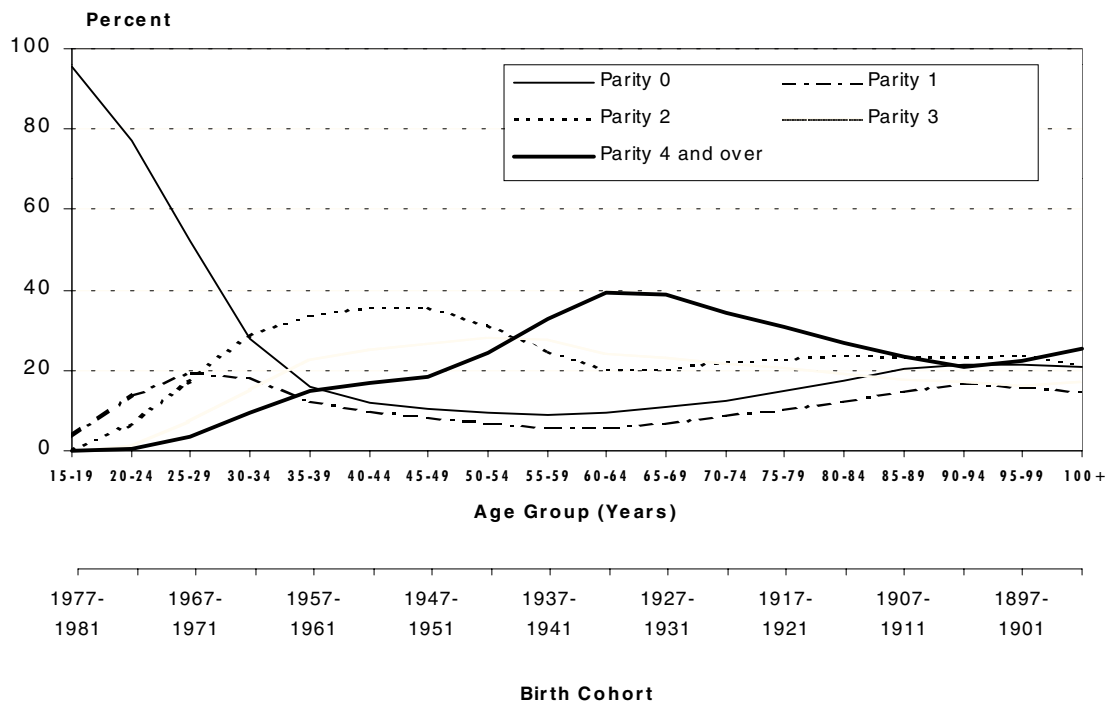
# Fertility Patterns Overview

### 4.1 Parity

Among women with at least one child, in societies where information on fertility choices is widely and openly available, either formally or via informal networks, the number of children a woman has previously given birth to is a key factor in deciding whether to have another child. But it operates differently for women deciding to have a second child from those deciding to have, say, a third child (Berinde, 1999), as it does for nulliparous women (that is to say, women who have not previously given birth to any children) deciding to have their first child. Deven and Bauwens (1989) have shown a universally strong relationship between childbearing intentions and a woman's parity status. For women with children, existing children exert both positive and negative pressure on future childbearing decisions.

Figure 3

#### Parity by Age, Women Aged 15 Years and Over Resident in New Zealand



Source: 1996 Census of Population and Dwellings

The number of children women have given birth to varies both with age and time. For the older generations (those women born prior to 1911 and still alive at the 1996 Census), the proportion of women of parity 0 is relatively high (Figure 3). These were women alive in 1996<sup>8</sup> who were born between 1896 and 1911 and would have been in their prime childbearing years at the time of the Great Depression in the early 1930s. Many of these women may have been forced by economic and social conditions to postpone childbearing and subsequently have been unable to have children, or even have consciously decided to forgo childbearing. At least some may have been infertile as a result of early abortions. Delayed marriages and increased birth spacing within marriage was a feature of this cohort. A similar phenomenon has been observed in Australia (Rowland, 1998), where postponement of childbearing within marriage during the Great Depression was a key factor in the high prevalence of childlessness.

<sup>8</sup> Many women in this cohort would have died or migrated from New Zealand and therefore the captured population is not necessarily representative of the cohort as a whole. In particular, part of the observed patterns are related to the link between longevity and fertility.

## 4.2 Women with one child

The number of women of parity 1 increases at the younger ages, peaking for the 1967-1971 birth cohort (aged 25-29 years at the 1996 Census) as many of these women have started their families but not yet had a second child. Women born prior to 1966 (aged 30 years and over) of parity 0 and parity 1 display similar patterns, although the proportion of parity 1 was less than that of parity 0 for all cohorts. In general, the proportion of women with one child varies in tandem with the proportion of women who have had no children.

Women born between 1912 and 1941 (aged 55-84 years in 1996) were more likely than other age group to have had four or more children<sup>9</sup>. Most women in this cohort would have been in their main childbearing ages during the post-Depression baby boom, a period characterised by early childbearing, shortening of birth intervals and a strongly pro-natalist environment. Of the 1927-1936 birth cohort (aged 60-69 years in 1996), about 3 in 10 women gave birth to either four or five children, and 1 in 10 gave birth to six or more children. Only 1 woman in 10 from this cohort remained childfree, similar to the other middle cohorts. Hence the baby boom did not occur simply because more women were having children, or having them earlier, but because women were also having larger families.

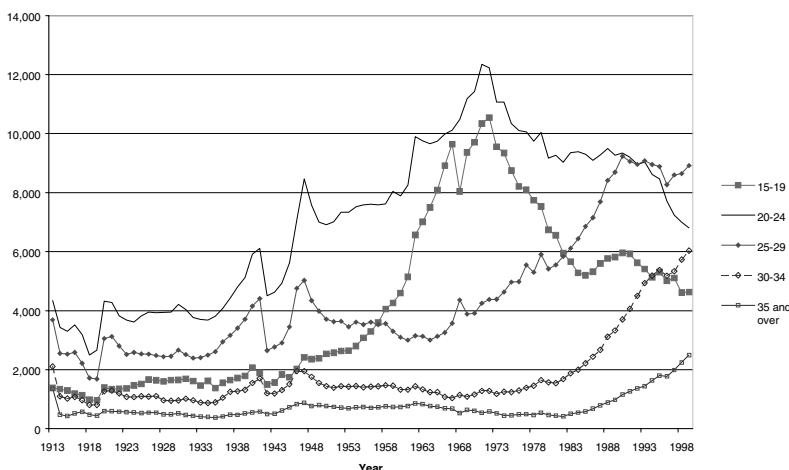
The trend swung back quickly though. The 1942-1961 birth cohorts (aged 35-54 years in 1996) favoured a smaller family norm, with two children being the most popular. Of women in this cohort, 34 percent had had two children, compared with 10 percent with one child and 25 percent with three children.

## 4.3 Beginning childbearing

One surprising result is that the age at which women start childbearing does not directly correlate with the number of children they eventually give birth to. Vital statistics (Figure 4) show that throughout the 1920s and early 1930s the patterns of age at first birth were fairly stable, with a noticeable though still small upward trend among the under 20 year olds. However, data for the years 1932-34, immediately prior to the onset of the post-Depression baby boom, indicates that first births were being delayed among the 20-34 year old women. Yet, these cohorts are the ones seen in subsequent census data as being of relatively high parity. In contrast, the 1950s cohorts (generally those having their first child in the 1960s and 1970s) tended to have their first child much younger, yet they restricted their families to fewer children. A significant feature of the 1980s and 1990s is the much stronger trend towards later initial childbirth, as seen in the declining numbers of women under 25 years and the rapidly rising numbers of women over 25 and over 35 years of age who are having their first child.

Figure 4

### First Births by Age of Mother, 1913-1999



**Note:** 1942 data not available and is estimated. Data refers to first births to the current relationship at time of birth.

**Source:** Vital Statistics, 1913-1941, 1943-1999

<sup>9</sup> For cohorts born earlier, the data is unclear since the relationship between longevity and parity will have had some effect – it is known that women of both high parity and zero parity tend to have shorter life expectancy. Factors, such as spacing of children, have long-term health consequences.

While the distribution of parities among women appeared to change little over the fifteen-year period from 1981 to 1996 (Table 5), when we look at the age structure of women we see a significant shift. The proportion of women of parity 0 decreases between 1981 and 1996 for all women aged 45 years and over. The opposite is true for women aged 15-44 years. In fact, women aged 30-34 years were twice as likely to be childfree in 1996 (28 percent) as in 1981 (14 percent). The effect of delayed childbearing can be seen by the increase in the proportion of women aged 15-29 years of parity 0 and the corresponding decrease for all parities 1 and over. A transition to smaller families is represented by the decrease in the proportion of women of parity 4 and over for all age groups. This is most extreme at ages 40-54 years when the proportion of women of parity 4 or over halves, from 37 percent in 1981 to 19 percent in 1996.

Table 5

### Percentage Distribution by Parity and Age Group

Census Year	Birth Parity (Percent)					Total
	0	1	2	3	4 and Over	
15-29 years						
1981	65.5	14.1	13.2	5.3	1.9	100
1996	74.6	12.6	8.3	3.1	1.3	100
30-44 years						
1981	11.1	8.8	31.5	26.4	22.2	100
1996	19.0	13.8	32.8	21.0	13.4	100
45+ years						
1981	15.6	10.5	21.6	20.5	31.9	100
1996	11.4	8.1	26.6	24.7	29.3	100
All Ages						
1981	31.4	11.3	21.3	16.8	19.2	100
1996	31.6	11.1	23.2	17.5	16.6	100

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1981 and 1996 Censuses of Population and Dwellings

While these data will be affected to some degree by the effects of migration patterns in the early 1990s, the scale of these changes will not invalidate a comparison of data at this level. This pattern is also supported by results from an international study of fertility decline in low fertility countries which concluded "the decline in the total number of births can be accounted for primarily by the disappearance of the large family" (United Nations 1992).

## Chapter 5

# Childfree Women

### 5.1 Background

Childfree women naturally fall into two quite distinct categories: women who have given birth to no live children, and women who have had children and for various reasons are now free of responsibility for them. In this chapter we are concerned with the former group.

In New Zealand, some 22 percent of women born between 1897 and 1901 recorded in the 1996 Census of Population and Dwellings had not given birth to any children. The rate of social change was extreme during these women's prime childbearing years, as expectations placed upon women and their social roles underwent major shifts. To some extent at this time, childlessness enabled women to remain openly in the workforce more easily. Women with children could generally only supplement incomes by working in the home, either by taking in boarders, or taking in sewing, ironing and other domestic service work. In many cases this would have been a deliberate choice. However, these cohorts would have been further constrained from starting families by the economic effects of the Great Depression.

The proportion of nulliparous women declined over the succeeding generations, so that the prevalence of childlessness fell to around 1 in 10 women for those born between 1927 and 1952, similar to the Australian experience (Rowland, 1998). There is currently a return to earlier levels underway with a steady increase in the proportion of women of parity 0 for the younger cohorts. Women in the youngest cohorts (aged 15-29 years in 1996), who may not have started their families, are most likely to be childfree, and trends at older ages imply that many of them will remain so, although teenage pregnancy remains an issue (Dickson et alia, 2000).

Again, these observations are consistent with trends in other countries. In a multinational study into childlessness, Rowland (1998) noted a marked decline in the proportion of women remaining childfree for cohorts born between 1900 and 1940 in developed countries, and an increase in childlessness among more recent birth cohorts. He attributes the revival of childlessness in the 1950s cohorts to the availability of more efficient methods of family limitation, especially the contraceptive pill. There may not be a direct link, but the increased use of contraception and the increase in childlessness may both be responding to a common set of drivers. This may distinguish involuntary infertility from deliberate infertility, and the introduction of the Pill could appear to have more directly influenced childlessness than family size limitation. However, the fact that it has not unduly influenced the latter must raise some doubts about how much it has contributed to childlessness except in cases of long-term use which has led to biological infertility.

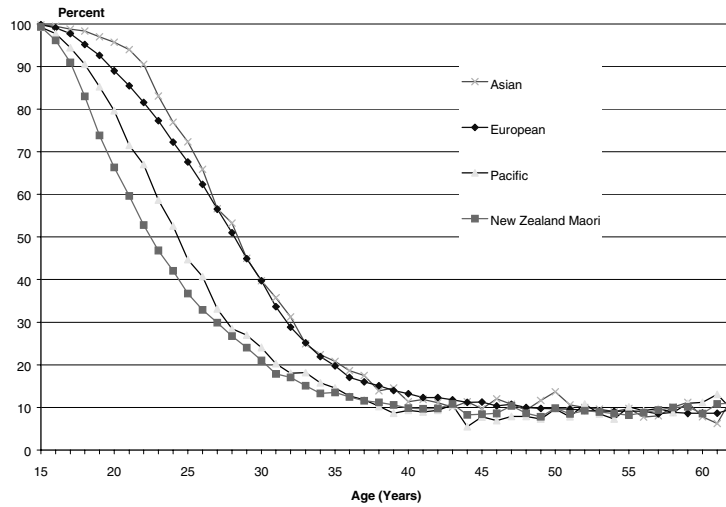
An understanding of both these rates is of great significance to population growth dynamics, since the rates influence such things as the population replacement fertility level. For example, an increase in the number of women who choose to remain childfree leads to a consequential fall in the overall fertility rate, even if the childbearing behaviour of those who choose to start families does not change.

### 5.2 Ethnicity

For women born in the late 1930s and early 1940s in particular (Figure 5), the proportion who have remained childfree is around 9 percent. This percent is very similar for all women, irrespective of ethnicity. However, women born after this time reached their prime childbearing years at about the time the contraceptive pill was introduced to New Zealand. There is a slight rise, among women born around 1950, in the proportion of childfree women to around 11.5 percent for women of both European and Asian ethnicities, who had more ready access to the new product. The rise for women of Māori and Pacific ethnicities is much less pronounced. The cohorts born from the late 1950s onwards have not completed their childbearing, as is clear from the graph.

Figure 5

**Childlessness for Selected Ethnicities and Age, Women Aged 15 Years and Over Resident in New Zealand**



Source: 1996 Census of Population and Dwellings

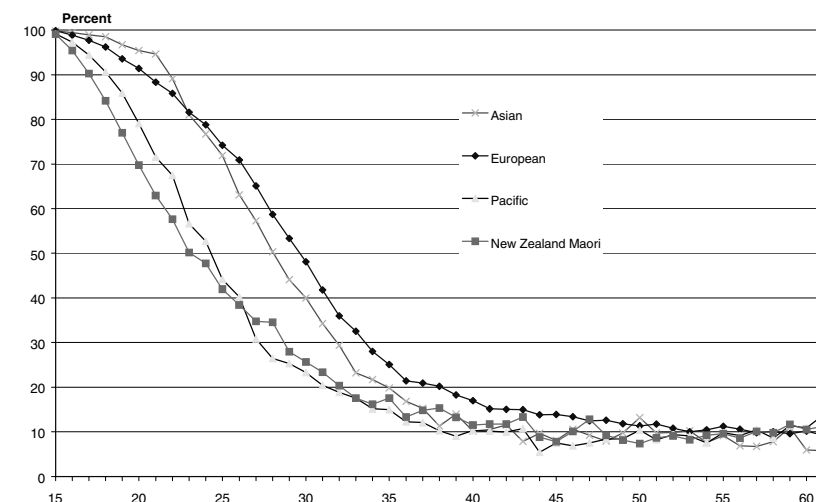
The graph also shows that women of European and Asian ethnicities tend to delay childbearing significantly longer than those of Māori and Pacific ethnicities. Moreover, given that the gap persists as women enter their forties, there is some reason to suggest that for more recent cohorts, ethnicity is linked with the causes of deliberative childlessness and may be one determinant.

**5.3 Geographic patterns**

There is a link between ethnicity and the geographic distribution of people, which may also affect fertility choices. For instance, it might be expected that Auckland would closely match and dominate the national pattern, primarily because of its population size. However, the increase in the percentage of women of European ethnicities who are childless is much sharper for this region, rising to more than 13 percent for those born in the early 1950s to more than 15 percent for those born in the late 1950s.

Figure 6

**Childlessness for Selected Ethnicities and Age, Women Aged 15 Years and Over, Auckland Regional Council Area**



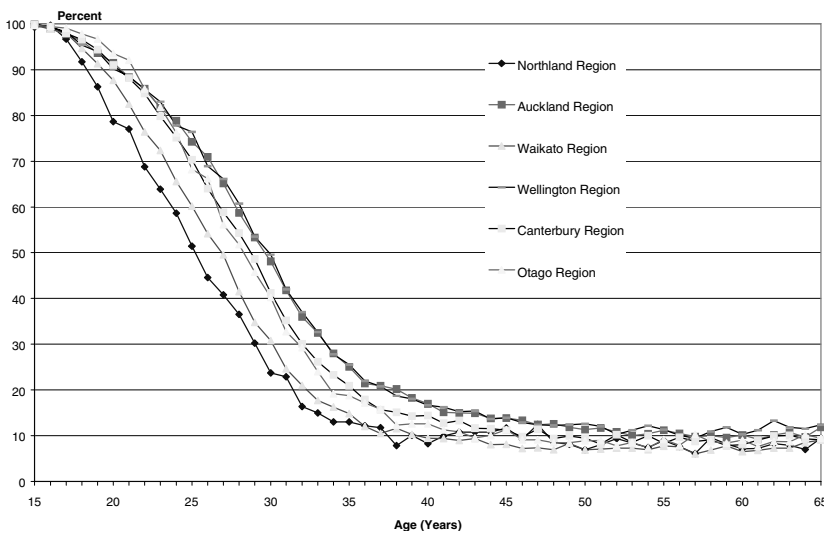
Source: 1996 Census of Population and Dwellings

In part, the increase in childless women in Auckland reflects the dominance of childfree women among the northward internal migration flows of female labour migrants. These women are now in their late forties and the vast majority may be expected to remain childfree. More than 20 percent of the 1958-1960 cohorts have no children, and while this percentage may drop a little with a few women having a first child in their forties, this is suggestive of a continuing trend.

The Asian population of Auckland differs from the national Asian population pattern significantly. The childfree proportion increases much more slowly, closely following the Māori and Pacific pattern, and is roughly 5 percent lower than the European rate until the very late 1950s cohorts. It then moves quickly to follow the European pattern, as seen in Figure 6. This at least partially reflects the migration history of the women concerned, especially the much more recent migration histories of women of Asian ethnicities in Auckland. Asian women in Auckland are more likely to have only recently arrived in New Zealand, and are more likely to continue to change location, than those elsewhere in New Zealand, who are more likely to have been born in New Zealand and less likely to change region.

Figure 7

### Childlessness by Selected Regional Council Area and Age, Women of European Ethnicities Aged 15 Years and Over Resident in New Zealand



Source: 1996 Census of Population and Dwellings

While ethnicity and birthplace have an important effect on patterns of childlessness, the regional component is also significant. As an illustration of the pattern, we can compare women of European ethnicities across regions. Figure 7 shows that for the more intensely urbanised regions, the rate of childlessness is higher than that of the national population, while for the more rural areas the opposite is seen.

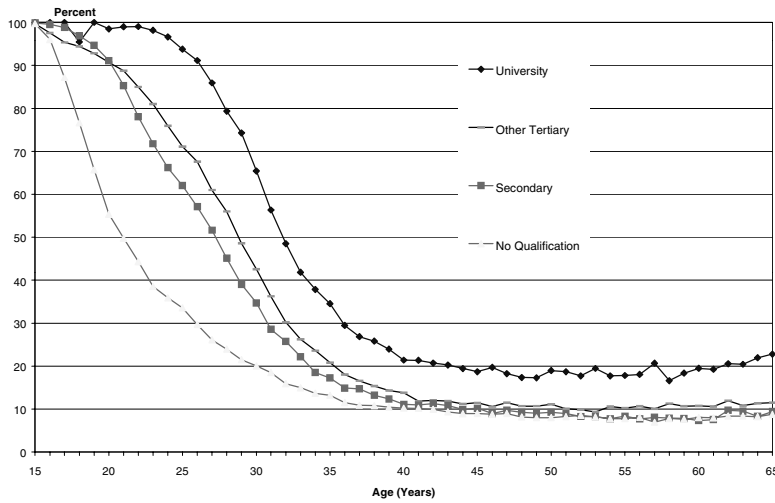
## 5.4 Education

For all women, educational level, as discussed in Chapter 7, is one of the most important of all determining factors for women deciding whether to have children. Not only does this affect the proportion having no children, but for those with children it affects the number of children.

With respect to women with no children, Figure 8 shows the extent to which there is a correlation between childlessness and the highest educational qualification achieved by women. Among the young women, many will still be studying or starting careers and will not have started families; however it is striking how strongly the relationship between education and fertility persists throughout all ages.

Figure 8

**Percentage Childlessness for Educational Achievement Level by Age, Women Aged 15 Years and Over Resident in New Zealand**



Source: 1996 Census of Population and Dwellings

Of particular note among childfree women, university graduates have a clearly stronger tendency to have no children, at roughly twice the average for any other group. For women aged 40 years and over, this is in contrast to women with other tertiary qualifications, who are only slightly more likely than other groups to be childfree. For those under 40 years of age, the categories are much more strongly differentiated.

## Chapter 6

# Marital Status

## 6.1 Legal and social marital status

The history of early census questions in New Zealand indicates a strong official bias towards directly linking childbearing and legal marriage. Over the last fifty years, increasingly it is acknowledged that many societies are returning to the earlier northern European norm of low legal marriage rates and preference for “common law” marriage. This has been accompanied by the shift from emphasis on legal marital status to social marital status.

Table 6

### Marital Status by Age Group

Marital Status	Age Group (Years)					Total
	15-19	20-24	25-34	35-64	65 and Over	
Married - first marriage	681	15,693	128,784	354,552	77,277	576,987
Married - remarriage	9	99	7,389	57,423	11,733	76,656
Married - not stated	60	561	3,834	14,046	4,266	22,767
Other partnered	7,281	27,957	47,049	40,230	1,500	124,020
Non-partnered, never married	109,953	79,152	67,716	37,353	12,330	306,507
Non-partnered, separated	63	1,305	10,941	26,481	2,130	40,923
Non-partnered, divorced	18	264	6,720	45,813	8,733	61,542
Non-partnered, widowed	12	51	633	25,263	100,323	126,276
Not specified	11,325	11,841	18,822	36,333	22,260	100,581
Total	129,405	136,926	291,882	637,491	240,552	1,436,256

All cells in this table have been randomly rounded to base 3.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

The subject population here is the 1,436,256 women usually resident in New Zealand and aged 15 years and over (Table 6). While one woman in five remains unmarried and not currently partnered, nearly two-thirds of these women are aged under 25 years.

Table 7

### Percentage Distribution, Marital Status by Age Group

Marital Status	Age Group (Years)					Total
	15-19	20-24	25-34	35-64	65 and Over	
Married - first marriage	0.5	11.5	44.1	55.6	32.1	40.2
Married - remarriage	0.0	0.1	2.5	9.0	4.9	5.3
Married - not stated	0.0	0.4	1.3	2.2	1.8	1.6
Other partnered	5.6	20.4	16.1	6.3	0.6	8.6
Non-partnered, never married	85.0	57.8	23.2	5.9	5.1	21.3
Non-partnered, separated	0.0	1.0	3.7	4.2	0.9	2.8
Non-partnered, divorced	0.0	0.2	2.3	7.2	3.6	4.3
Non-partnered, widowed	0.0	0.0	0.2	4.0	41.7	8.8
Not specified	8.8	8.6	6.4	5.7	9.3	7.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Percent ever mMarried	0.7	13.1	54.2	82.1	85.0	63.0

Subject population: Women aged 15 years and over resident in New Zealand.

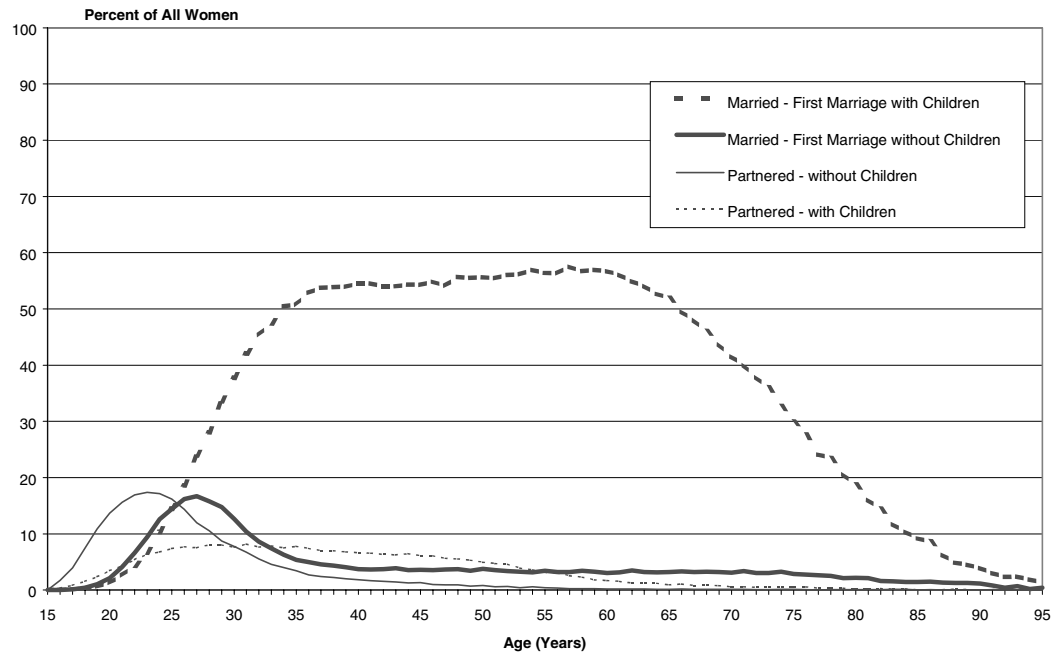
Source: 1996 Census of Population and Dwellings

By the time women are in the 25-34 years age group, less than one in four have not married at least once and are not currently in a partnership (Table 7). Similarly the proportion of women who are divorced in the 35-64 years age group, relative to other ages, relates in part to patterns in duration of marriage and partly to Moen's point that it is not being retired that causes marriages to break down, it is becoming retired (Moen, et al, 2001, 69).

Clearly, younger age groups are choosing informal marriage, peaking at over 20 percent of women aged 20-24 years. This globally increasing trend is related to other trends such as later marriage, as many of the women in informal partnerships do appear to move into legal marriages with the arrival of their first or subsequent child (Figure 9). However, we do not have census data on the duration of marriages which would enable us to analyse this trend in detail. Moreover the relative magnitude of the peaks seen in Figure 9 implies either that the transition from informal to formal marriage is the norm, or that there is an extremely rapid shift to informal marriage currently taking place.

Figure 9

**Percent of Women of Selected Marital Status by Age, Women Aged 15 Years and Over Resident in New Zealand**



Source: 1996 Census of Population and Dwellings

**6.2 Ex-nuptiality**

An increasing proportion of all births in New Zealand occur outside formal marriage, reaching 42 percent in 1998, compared with 31 percent in 1988 and 20 percent in 1978 (Statistics New Zealand 2001). Nearly 60 percent of first births were ex-nuptial in the late 1990s (Figure 2). There is also a significant spatial variation, ranging from around 55 percent for main urban areas and rural areas to over 66 percent for secondary and minor urban areas. Many of these children are born to couples living in de facto unions, though many unions form with the arrival of a child. The 1996 Census found that around 37 percent of mothers who had never married were living with a partner. In contrast, only 21 percent of all women who had never married (over 30 percent of those aged 20-34 years) lived with a partner they were not married to. However, as Dharmalingam (1999, 24) has put it, “in sum, marriage as an institution is not going out of fashion, [it is] just being re-branded” as formal legal marriage is supplanted by more traditional forms of union.

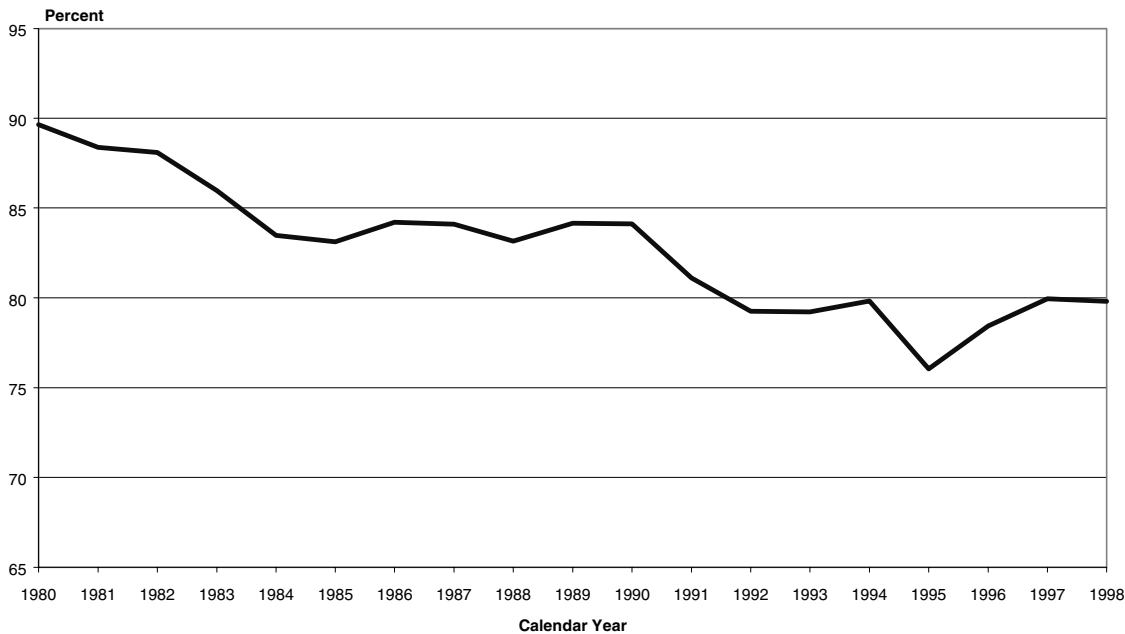
In the 1996 Census data, nearly half of all couples with a childfree female partner (or in the case of same sex female partnerships, either female) were living in de facto relationships, while this dropped to under 10 percent for couples with children<sup>10</sup>. This does not seem to vary greatly with the age of the women involved, though there is a slightly higher proportion of such partnerships among women in their thirties.

Within New Zealand, as in other countries (cf Bachu and Jones, 1999), marriage often was a consequence of pregnancy, especially prior to the 1960s when sole parenting was much more strongly stigmatised. Thus, in the 1930s, more than one bride in five was pregnant at the time of marriage. Indeed for some couples, even well into the 1970s and perhaps 1980s, fear that their children may be exposed to lingering vestiges of this type of social stigmatising leads to marriage around the time of a child entering the education system.

<sup>10</sup> This may occur, for example, where a couple are caring for children which are the offspring of a previous relationship of the other partner or the children have been adopted.

Figure 10

### Percentage of Premarital Conceptions Recorded as First Births (Ex-Nuptial or within 8 Months of Marriage), 1980-1998



**Note:** The early 1980s data is artificially high as a result of the routine practice of generally recoding parity of those births to one based on the recorded date of marriage.

*Source:* Vital Statistics, 1980-1998

The continuing decline in the number of marriages due to pregnancy may be inferred from the graph, in part, by the fact that the occurrences of first births among all births to women who have been married for less than eight months is still decreasing (Figure 10). This decline further indicates that marriage is increasingly being delayed until either a second or subsequent pregnancy, or until an earlier child is reaching school age. Functionally, institutionalised marriage is no longer directly related to family formation. Formal marriages now commonly occur either long before childbearing begins (if at all), or after childbearing has been completed, or after children have left home, indicating that marriage now is serving a different social role. More recently, this has been assisted by increased access to, and awareness, acceptance and effective use of contraceptives, along with changing social attitudes towards formal marriage.

It should be noted again that the data for the early 1980s in Figure 10 is artificially high as a result of the routine practice of generally recording births as first births if they occurred close to the date of marriage. In other words, it was assumed that marriage to the current partner took place because of the pregnancy and that this was the first child of this union. It is hard to assess the impact of this, but the trend implies that it may have increased the level by around three or four percent.

Table 8

### Average Number of Children per Woman, by Specified Marital Status and Age Group, Selected Ethnicities

Marital Status and Ethnicity	Average Number of Children (by Age Group of Women in Years)					Total
	15-19	20-29	30-44	45-64	65 and Over	
Partnered, legal spouse (not separated) - first marriage						
European	0.5	1.0	2.2	2.8	3.0	2.4
Asian	0.3	0.8	1.8	2.7	3.9	1.9
Māori	0.8	1.6	2.8	3.9	4.6	3.0
Pacific	0.7	1.7	3.0	4.1	5.2	3.1
Other partnered						
European	0.1	0.5	1.9	2.7	3.0	1.8
Asian	0.1	0.4	1.6	2.7	3.7	1.4
Māori	0.3	1.1	2.6	3.8	4.4	2.2
Pacific	0.3	1.1	2.8	3.9	4.7	2.3
Non-partnered, never married						
European	0.0	0.3	0.6	0.2	0.1	0.2
Asian	0.0	0.1	0.3	0.8	1.6	0.1
Māori	0.1	1.0	1.9	1.7	1.4	0.8
Pacific	0.1	0.5	1.4	1.8	2.3	0.5
Non-partnered, separated/divorced/widowed						
European	1.0	1.4	2.2	2.8	2.9	2.7
Asian	0.3	0.8	1.6	2.9	3.6	2.5
Māori	0.8	2.1	3.1	4.3	4.8	3.8
Pacific	0.0	2.0	3.0	4.4	5.1	3.8
Total						
European	0.0	0.5	2.0	2.7	2.8	1.9
Asian	0.0	0.4	1.7	2.6	3.6	1.4
Māori	0.1	1.2	2.6	3.8	4.6	2.1
Pacific	0.1	1.0	2.7	4.0	4.9	2.1

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

## 6.3 Ethnicity

Marital status is not independent of other socio-economic factors. This can be readily seen when we consider the average number of children born to women by age and ethnicity (Table 8).

For all ethnicities, those women who have been married only once generally tend to have slightly more children than women who have been previously married or are in de facto partnerships. But the differences are not as significant as the much larger disparities at all ages between women of various ethnicities. It can also be seen that the Māori and Pacific trends are quite dissimilar to the Asian and European trends. For example, the difference between the average number of children born to non-partnered women of European and Asian ethnicities, and those of Māori and Pacific ethnicities, is very much larger than that which we find among married women. It is also apparent that for these respective groups the European and Asian groups have much lower fertility than the Māori and Pacific groups, but this gap is showing signs of converging. This effect is further analysed in a forthcoming study on ethnicity and fertility.

## 6.4 Religion and marital status

Another socio-economic characteristic often cited as a key determinant in fertility, and analysed in more detail in a separate chapter below, is religion. In this case we can see from Table 9 that there is only a small relationship between religious affiliation, the average number of children and marital status, and essentially none for all age groups and religions among women under 45 years.

Among women aged 65 years and over, the average number of children is slightly higher among Catholics and Muslims who are either once-married or are separated, divorced or widowed. It is also higher for Catholic women in this same age group who are in other partnerships or remarried. Overall, Catholic women in this age group have had 3.3 children on average. This is higher than women of other Christian religions. Similarly, Muslim women of this age group have had on average 4.6 children, higher than women of other non-Christian religions. However, these differences do not hold for other age groups.

This finding might appear to lend a small amount of support to the folk-wisdom that in the past Catholic families were larger than average. However, the appearance of this difference only among the oldest age groups indicates that this is no longer the case, if indeed it ever were the case in New Zealand. A number of other factors may act as underlying causes. In the case of older women affiliated to Islam, the explanation is more likely to be related to their birthplaces than specifically their religion, with significantly higher average numbers of children for Muslim women born in the Pacific and Africa than those born in New Zealand or elsewhere. In both cases, for all other age groups, much larger disparities exist between women of different marital states than between women of different religious affiliations, and, as will be shown below, what diversity there is among older women can be explained by ethnicity, birthplace and migration histories more satisfactorily.

Table 9

### Average Number of Children per Woman, by Specified Marital Status and Age Group, Selected Religious Affiliation

Marital Status and Religious Affiliation	Average Number of Children (by Age Group of Women in Years)					Total
	15-19	20-29	30-44	45-64	65 and Over	
Partnered, legal spouse (not separated) - first marriage						
Catholic	0.6	1.0	2.3	3.3	3.8	2.7
Other Christian	0.6	1.1	2.3	2.8	3.0	2.5
Muslim	0.2	1.1	2.4	3.2	5.3	2.1
Other religions	0.2	0.8	2.0	2.8	3.4	2.0
Other partnered						
Catholic	0.2	0.6	2.0	3.0	3.5	1.9
Other Christian	0.2	0.6	2.1	2.8	3.0	2.1
Muslim	0.4	1.0	2.2	2.9	2.4	1.9
Other religions	0.1	0.5	1.7	2.6	3.2	1.7
Non-partnered, never married						
Catholic	0.0	0.3	0.9	0.4	0.1	0.3
Other Christian	0.0	0.4	0.9	0.5	0.2	0.3
Muslim	0.0	0.1	0.6	1.3	1.3	0.1
Other religions	0.0	0.1	0.6	0.7	1.1	0.2
Non-partnered, separated/divorced/widowed						
Catholic	1.5	1.6	2.4	3.4	3.5	3.2
Other Christian	0.9	1.6	2.4	3.0	2.9	2.8
Muslim	0.0	1.2	2.5	3.1	5.0	2.7
Other religions	0.7	1.0	1.9	2.9	3.2	2.6
Total						
Catholic	0.0	0.6	2.1	3.1	3.3	2.1
Other Christian	0.0	0.7	2.2	2.8	2.8	2.1
Muslim	0.0	0.8	2.3	3.1	4.6	1.7
Other religions	0.0	0.5	1.8	2.7	3.2	1.6

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

From the data presented in this chapter, it can be seen that being partnered, or having been partnered but being separated, divorced or widowed, does have a bearing on the number of children a woman will ultimately give birth to. Women in these groups tend to have more children than their cohort peers who have never been married. However, the nature of the partnership increasingly makes little difference to this number, with women in informal relationships tending to give birth to very similar numbers of children as women in formal partnerships.

One of the questions which we cannot answer using census data is perhaps the most important of all. If partnership formation and the number of children are related, to what extent does one influence the other and what is the effect on the duration, or perhaps durability, of the partnerships?

## Chapter 7

# Education

### 7.1 Background

In most societies, education is a central component of personal development and social advancement. A United Nations (1993) study on fertility transition and women's life course in Mexico found that a woman's education was more consistently important than any other social factor as a primary determinant of her reproductive behaviour, and this broad conclusion is also true in New Zealand. Education provides both men and women with more choices about their lives and affects not only future occupational opportunities, but also potential earning power. It is also a major investment cost which parents are largely expected to spread among their children. This leads to education taking precedence over fertility because of the importance of educational achievement to socio-economic status. Research, both in developed and developing countries, and across all world regions, has established the validity of a functional relationship between education and fertility. A consistent theme in this research is that higher educational attainment among women is to be linked to lower fertility.

However, some of these studies found the association between education and fertility to be more complex. It is far too simplistic to conclude that higher educational achievement in itself leads to lower fertility. For example Bakker (1986), using data from the 1980 Papua New Guinea Census, observed a curvilinear relationship between a woman's education and her fertility. Flórez (1996), in a study on fertility transitions of Colombian women, found that at least completion of primary school was necessary before education had a depressive effect on reproductive behaviour. Similarly an international study, using evidence from the Demographic and Health Surveys conducted by the United Nations (1995), observed a 'threshold' level of schooling required to induce a significant change in fertility outcomes within African regions. The same report concludes that "as a society's level of development improves, the relationship between education and fertility becomes unequivocally negative". This is supported by results from the 1991 Census of Canada (Statistics Canada, 1993), which found that the higher the education of ever married women the lower their fertility.

It is to be expected that, with a similarly advanced level of literacy and near universal educational attendance amongst New Zealand's school age population, a similar negative relationship would exist here between education and fertility. In contrast to some other countries, New Zealand has had a compulsory education system for some years. Under the Education Act 1877 and the subsequent Acts of 1914 and 1964, people were required to participate in compulsory full-time education until the age of 15 unless exempt by legal dispensation. However, prior to the Second World War, a significant proportion of people aged 12 years and over dropped out of school unless they passed the Proficiency examination. In 1989, the school leaving age was raised to 16 years, yet even in 1996 over a quarter of the 15-year-old females stated that they were not in formal study.

While children generally begin primary education at the age of five, and many attend early childhood educational institutions such as kindergartens, they are not legally required to attend until the age of six (prior to 1964, seven years of age). Recently, new requirements for schools to carry liability insurance has inhibited children under the age of five from attending primary school, a common occurrence for brighter children prior to the mid-1980s, in non-state schools at least.

### 7.2 Qualifications data

Data relating to highest educational qualification was derived from two pairs of questions in the 1996 Census. In each case the pair consisted of a filter question, followed by a question to capture details of the qualification. In the first pair, respondents were asked if they had a secondary school qualification and if so, what their highest secondary school qualification was. Next, respondents with any other qualification, such as a trade certificate, a diploma or a degree, were asked to give details of their highest qualifications (up to two tertiary qualifications were collected). The total level of non-response from all women was 15 percent.

The following analysis relates to the 1,273,344 usually resident women aged 15 years and over at the 1996 Census who specified both their educational attainment and the number of children born to them (Table 10). Thus women who, for one reason or other, have data missing from any of the contributing variables are excluded, and we need to be aware of the potential for this 'not specified' population to affect the results. The

effect is especially significant for data on educational achievement because of the relationship that may exist between this and the propensity to either fail to complete or to incorrectly complete census questionnaires. The women who did answer both the fertility and the educational qualification questions may be quite different in characteristics to those who did not do so, or only partially answered these questions.

Table 10:

### Relationship between Specified Highest Qualification and Specified Number of Children

Highest Qualification Attained	Number of Children Stated	Number of Children Not Stated	Total
Tertiary qualification	394,242	21,993	416,235
Secondary qualification	444,855	28,308	473,163
No qualification	434,250	41,208	475,455
Total qualification specified	1,273,344	91,506	1,364,853
Not specified	10,476	60,927	71,406
Total	1,283,823	152,433	1,436,256

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

While the non-response rate was very low among women who completed the fertility question, a large number (around 136,000 or 11 percent) specified their level of qualification but not what their qualifications were. However, of those women who did not specify the number of children, the majority (74 percent) also failed to specify their educational level. Of those women who utilised the option to object to stating the number of children they had given birth to, 46 percent had no formal qualification compared with 24 percent who had a tertiary qualification. This group, though, did show a slightly higher tendency to provide the level only of their qualifications, but not the name of the specific qualification. Thirteen percent of those who did answer the qualifications questions, or 9,000 women, provided only the level of their qualification<sup>11</sup>.

Educational qualification data only recorded completed qualifications. Partially completed courses and completed papers towards a degree or other standard qualification were not collected by the census in 1996. Moreover, only the two highest tertiary qualifications were sought by the census – a woman may have several other tertiary qualifications, so her educational achievement is only partially recorded. A better measurement of the relationship between educational attainment and fertility may have been provided by tabulating the respondents' years of attendance at various educational levels, but this information is not available. Some people take longer than others to gain the same qualification, and others gain several qualifications, so that the actual time spent in education may be more significant than the eventual level achieved. Moreover, the highest educational attainment at the time of the 1996 Census may differ markedly from either the educational attainment at the time of the birth of a child or from the highest level of education that a woman might eventually attain after the census. Similarly, we do not know whether the educational aspirations of the mother changed as a result of pregnancy.

## 7.3 Changing educational environment

In general, most women within New Zealand pursue their education at younger ages and before starting their families, though this is changing as evidenced by the rapid increase in the number of crèche facilities in tertiary (and some secondary) educational institutions. Of those women who had at least one tertiary qualification at the 1996 Census, 70 percent had obtained their first tertiary qualification by 23 years of age.

However, although schooling in New Zealand is now compulsory until the age of 16 years, there is still a considerable proportion (34 percent) of women with no formal qualification (Table 11). The proportion of women with a secondary school qualification (school certificate, sixth form or higher school qualification) or tertiary qualification (bachelor or higher degree, or vocational qualification) was approximately the same at 44 and 35 percent respectively for those without children, and 31 and 29 percent for those with children.

<sup>11</sup> A limitation in this data is that it is suspected, though not proven, that in some cases people used the tickboxes of the routing questions to indicate that they had some tertiary education but not a complete qualification. It is therefore a dilemma whether to treat this group as non-respondents or accept them at the stated level, since many, if not most, will have completed at least one relevant qualification but failed to complete the following question for a number of reasons. In this analysis it has been decided to include these responses as valid.

Table 11:

## Highest Qualification by Number of Children (Specified Cases Only)

Highest Qualification Attained	Women by Number of Children					
	None	One	Two	Three	Four or More	Total
Numbers						
Higher degree	13,179	3,675	6,855	3,792	2,124	29,625
Bachelor degree	33,783	7,752	12,600	7,431	3,987	65,550
Vocational qualification	71,451	24,930	56,481	42,372	28,314	223,545
Other tertiary qualification	22,758	9,861	17,289	12,570	13,041	75,522
Secondary qualification	178,515	49,041	98,463	66,852	51,984	444,855
No qualification	84,501	45,939	104,268	89,046	110,493	434,250
Total	404,187	141,195	295,959	222,060	209,946	1,273,347
Percentages						
Higher degree	44.5	12.4	23.1	12.8	7.2	100
Bachelor degree	51.5	11.8	19.2	11.3	6.1	100
Vocational qualification	32.0	11.2	25.3	19.0	12.7	100
Other tertiary qualification	30.1	13.1	22.9	16.6	17.3	100
Secondary qualification	40.1	11.0	22.1	15.0	11.7	100
No qualification	19.5	10.6	24.0	20.5	25.4	100
Total	31.7	11.1	23.2	17.4	16.5	100

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Table 12

## Percentage Distribution of Women by Highest Qualification (Specified Cases Only), Number of Children and Birthplace

Highest Qualification Attained and Birthplace	Women by Number of Children					
	None	One	Two	Three	Four or More	Total
Higher degree						
New Zealand born	47.48	10.38	21.16	13.36	7.60	100
Overseas born	39.55	15.87	26.40	11.81	6.42	100
Bachelor degree						
New Zealand born	55.32	9.76	17.15	11.43	6.33	100
Overseas born	41.94	17.07	24.56	11.03	5.41	100
Vocational qualification						
New Zealand born	33.01	10.72	24.38	19.03	12.85	100
Overseas born	27.26	13.10	29.29	18.62	11.75	100
Other tertiary qualification						
New Zealand born	32.01	12.30	21.21	16.75	17.73	100
Overseas born	25.42	15.01	27.56	16.26	15.72	100
Secondary qualification						
New Zealand born	41.66	10.65	21.23	14.88	11.57	100
Overseas born	33.87	12.55	25.99	15.62	11.97	100
No qualification						
New Zealand born	19.80	10.18	23.71	20.84	25.48	100
Overseas born	17.90	12.45	25.56	19.09	25.00	100
Total						
New Zealand born	32.71	10.54	22.47	17.62	16.66	100
Overseas born	28.06	13.29	26.42	16.71	15.52	100

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

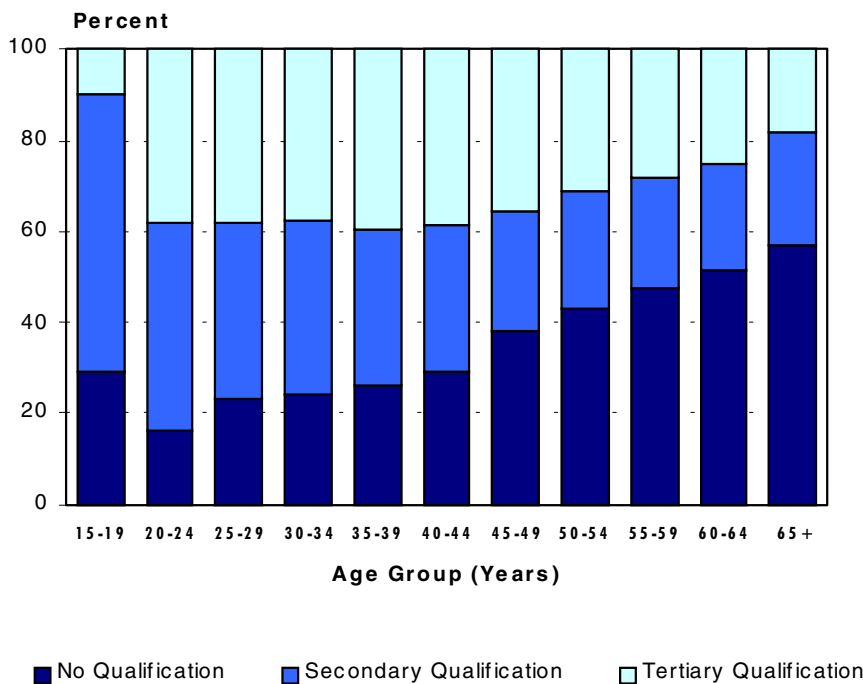
When we consider the relationship between qualifications and the number of children, we observe that the distribution of women with one or two children is fairly even. However, among women with tertiary qualifications, there are markedly more who have had no children and fewer who have had more than two children. Those with other tertiary qualifications (these are either partially specified qualifications, partially identified overseas qualifications or minor non-vocational qualifications) appear to be slightly aberrant in this respect. One of the interesting aspects of the data is that women born overseas (Table 12) exhibit this characteristic even more than New Zealand-born women.

### 7.4 Educational level

Inter-dependence of age and educational attainment is illustrated in Figure 11. For women aged 20 years and over, the proportion with at least a secondary school qualification decreases with age, while the proportion with no formal qualification increases. Well over half (57 percent) of women aged 65 years and over had no formal qualification, contrasting with only 16 percent for women aged 20-24 years. This upward shift in the educational distribution amongst the younger generation, along with greater emphasis on higher qualifications, has occurred as employers put more emphasis on the need for qualifications. There has also been a shift in the reason that women acquire an education: from enhancing their family role to doing so for occupational roles. Women in the 15-19 years age group had a much lower proportion with a tertiary qualification (10 percent) than any other age group because women in this group were less likely to be old enough to have completed any tertiary qualifications and were more likely to be still studying.

Figure 11:

**Distribution of Highest Qualification by Age Group, Women Aged 15 Years and Over Resident in New Zealand**



Source: 1996 Census of Population and Dwellings

One of the consequences of the stronger propensity for women with degrees to have no children, compared to those with a less advanced education, and for those with children to have restricted themselves to one or two children, is seen in their fertility patterns. Women with higher educational attainment (Figure 12) had lower fertility for all birth cohorts.

Fertility differentials between women with no qualification and those with either a secondary school or tertiary qualification are greatest for 1962-1976 birth cohorts (0.4 and 1.0 children per woman respectively for women aged 20-34 years). These differentials then reduce to remain fairly stable for women born between 1922 and 1956 (under 0.2 and over 0.4 children per woman respectively for women aged 40-74 years), reflecting

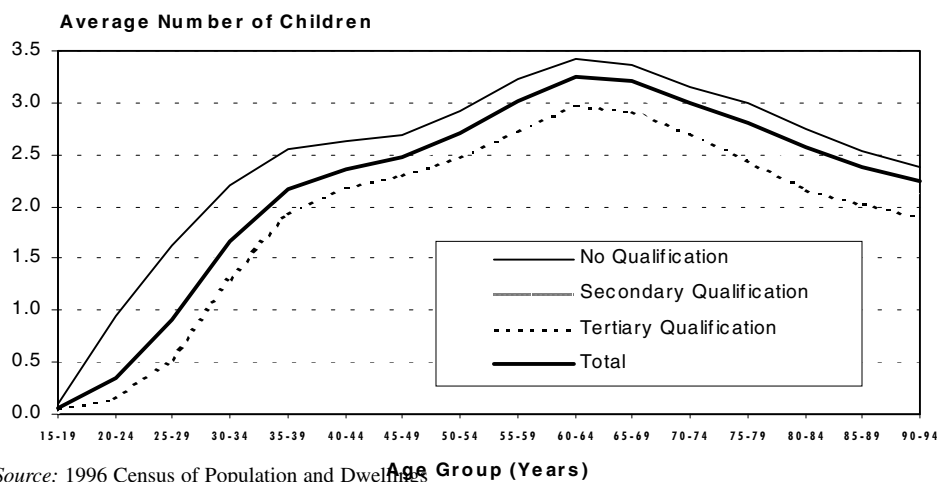
delayed childbearing as a result of commitments to education and subsequent career opportunities. The personal financial burden caused by the cost of higher education, now commonly deferred in the form of student loans (introduced in 1992), may also contribute to delayed childbearing. Women with a higher education, while still having a smaller average family size, do catch up to some extent on their less educated counterparts. Rather than putting off childbearing altogether, many women with higher qualifications tend instead to defer their childbearing until older ages. Others continue part-time study, with around one in ten women aged 25 to 45 years continuing to study, irrespective of number of children, though this drops to around one in twenty for women in their fifties.

## 7.5 Education and delayed childbearing

Results from the 1996 Census indicate that more educated women are delaying childbearing to a significant extent compared to their less educated counterparts. Given this relationship between higher levels of education and delayed childbearing, an upward shift in the educational attainment distribution among more recent cohorts may, in part, explain an overall shift in the age pattern of fertility towards older ages.

Figure 12:

### Average Number of Children per Woman by Age and Highest Qualification Attained, Women Resident in New Zealand Aged 15-94



Source: 1996 Census of Population and Dwellings

At ages 75-84 years, larger fertility differences occurred between women with no formal qualification and those with a tertiary qualification because of relatively large decreases in fertility for women in the latter group. These 1912-1921 birth cohorts would have entered their main reproductive years during World War II. At this time there was less incentive for highly educated women to have children, as they were forced to take the place of men (often their husbands) who were away overseas because of the war. While some catching up in the form of delayed childbearing is apparent among this group, not all women reached the same fertility levels which might have been expected from the pre- and post-War trends..

Women with a tertiary or secondary school qualification (Table 13) had a younger age structure (median age of 38 and 32 years respectively) than those with no formal qualification (median age of 50 years). Any group with a higher proportion of younger women (for example, women with a secondary school qualification only), who have not completed their childbearing, is likely to display lower fertility levels even if all groups have the same intrinsic level and pattern of childbearing.

## 7.6 Consequences for fertility

Both the actual and age-adjusted figures (adjusted for age using the 1996 Census age-distribution of all women as the standard) indicate that qualified women tend to have lower fertility than unqualified women. They also show an inverse relationship between women's education and fertility. Women without any formal qualification at the 1996 Census had an age-adjusted fertility rate of 2.26 children per woman. This compares with below replacement fertility levels of 1.87 and 1.67 children per woman for those with a secondary school or tertiary qualification.

Table 13:

**Highest Qualification by Average Number of Children (Actual and Age-adjusted)**

Highest Qualification Attained	Usually Resident Women	Number of Children	Average Number of Children	
			Actual	Age-Adjusted
Tertiary qualification	394,242	655,470	1.66	1.67
Secondary qualification	444,855	696,207	1.57	1.87
No formal qualification	434,250	1,085,208	2.50	2.26
Total specified	1,273,347	2,436,885	1.91	1.94
Not specified	10,476	28,515	2.72	2.31
Total	1,283,823	2,465,400	1.92	1.92

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

While a clear functional relationship can be seen between fertility and education, this does not necessarily imply a simple causal relationship in either direction, nor indeed does it imply that each is not a response to a different set of drivers. For instance, the lower fertility rate for educated women than for uneducated women is not necessarily caused by their different educational levels. It may, for example, to some extent have been caused by different attitudes in their social peer groups to contraceptive use, timing of childbearing or, indeed, the idea of having a family at all, with these peer groups also having specific pro-education views.

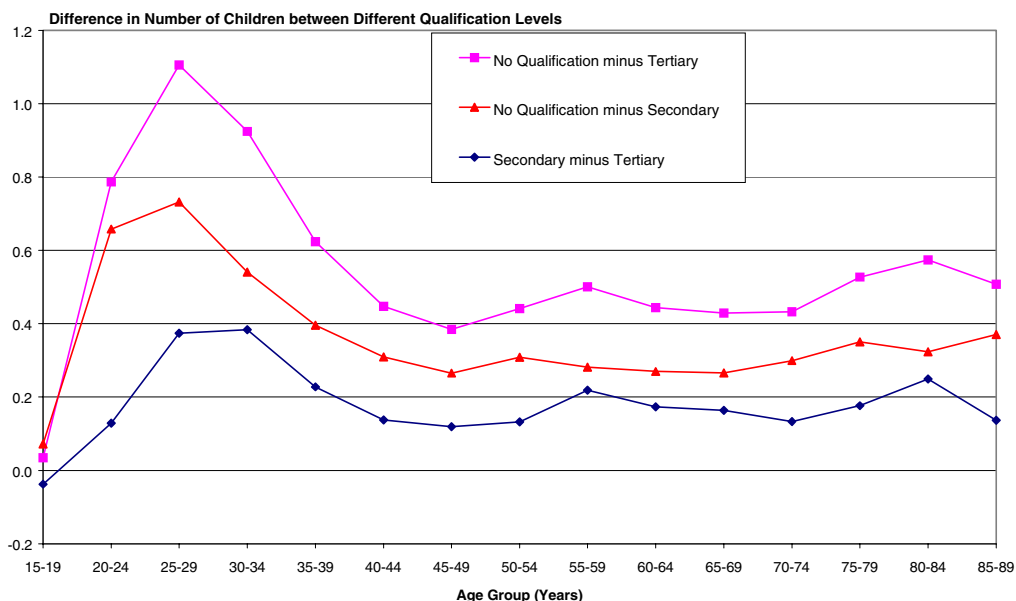
Education has an indirect effect on fertility through the postponement of marriage and the age at which the first child is born. More highly educated women are exposed to a greater flow of information, tend to attach less value to high fertility, and have different social and economic aspirations that are often incompatible with very large families. This appears also to hold broadly true for most countries. A survey of the relationship between socio-economic factors and fertility decline in five developing countries found that women with higher levels of education may be more likely to marry at a later age or to use contraception (United Nations, 1990). Moreover, women with higher levels of education consistently displayed the highest rates of contraceptive use in all countries (United Nations, 1995).

## 7.7 Education and contraception

Bélanger (1998), in a national survey of Canadian birth control practises, showed that, while the proportion of people using contraception did not vary markedly with educational attainment, the choice of method did. At present limited information exists on contraceptive practises within New Zealand, although a nation-wide survey conducted in 1995 by Pool et al (1999) provided some tentative information on the ultimate method of contraception – sterilisation. Ethnic and cross-cultural factors seem to be at least in part at work here. They observed that among non-Māori women, education did not affect acceptance of sterilisation, implying that among these women sterilisation was undergone for reasons other than simply contraception. However, among Māori women, those with secondary or tertiary qualifications were more likely to accept sterilisation than those with no formal qualification.

Figure 13:

### Fertility Differentials between Qualification Level Groups, Women Aged 15 Years and Over Resident in New Zealand by Age Group



Source: 1996 Census of Population and Dwellings

The proportion of women aged 15 years and over with either a tertiary or secondary school qualification increased between 1981 and 1996 for women in all five-year age groups. This reflects the increasing focus on and availability of educational qualifications in recent decades. On the other hand, a comparison of 1981 and 1996 age-adjusted fertility rates by educational group shows little difference over the 15-year period, with fertility differentials for all women in 1996 remaining basically unchanged from those in 1981. In contrast, an international study involving 38 developing countries found that, in most countries, fertility differentials between highly educated women and their uneducated counterparts had grown over time (United Nations, 1987). A comparison of data from the 1981 and 1996 Censuses does not give any evidence of this being the case for New Zealand women, and the reasons for this are unclear. It is possible that disparities within the education systems, with different standards at the upper and lower extremes, may in part explain this, but it is more likely that the dynamics of the second fertility transition may have had this unexpected consequence.

## 7.8 Education and age

Differentials between educated and uneducated women actually decreased for all women over the age of 40 years (Figure 13). On average, differentials between women aged 40-94 years without any qualification and those with a tertiary qualification decreased by 0.25 children per woman between 1981 and 1996. Similarly, the average decrease in differentials between those with no qualification and a secondary school qualification was 0.17 children per woman over the same period. Although fertility differentials between education groups still exist, they have declined over time for women whose families are complete. It is only relatively recently that women, no matter how well-educated, have had a wide range of career opportunities and these differentials are partly an historical artefact in the data relating to earlier norms.

The opposite is true for women under 40 years of age. In this case, differentials in average family size by education for younger women increased between 1981 and 1996. For women aged 25-34 years, fertility differentials between those with no formal qualification and those with a tertiary qualification increased from 0.81 to 1.02 children per woman. However, differentials between women with no qualification and those with a secondary school qualification decreased from 0.53 to 0.38 children per woman.

Care, though, is needed in interpreting this decrease. If the 1996 data is restricted to only women who both stated that they had a tertiary qualification and specified what that qualification was, then the differential is 0.65, an increase rather than decrease for this subgroup. It is unclear exactly how comparable the 1981 and 1996 data are in this respect, and this illustrates the cautionary comments elsewhere in this work about data quality and comparability. However, in both censuses the secondary qualification questions were subject to similar types of uncertainty, and it is preferable to adopt the approach taken in the text. Either way, it is safe to say that there was effectively little change.

Increases in differentials among the higher educational achievers are caused, inter alia, by a greater number of tertiary-educated women delaying childbearing, and tertiary-educated women delaying childbearing for longer. It can be concluded that, although delayed childbearing by more highly-educated women is not a new concept, it has become more pronounced. Educated women are not only delaying their childbearing more than their less educated counterparts, but are also doing so more than in the past. Many are choosing, or are forced by excessive delay, to forego childbearing altogether. This transition to later motherhood and increasing childlessness is likely to influence the final family size of highly educated women. Overall the education differentials in fertility remain fairly stable – it is the differentials in fertility timing that have changed.

This same phenomenon of delayed childbearing by more educated women was observed by Rindfuss et al (1996) for American women over the 27-year period 1963-1989. Not only do women postpone their childbearing to gain higher qualifications, but those with career aspirations postpone motherhood in order to establish themselves within their desired profession. Similarly, Flórez (1996) found that, for Colombian women, remaining in the educational system for a longer period is associated with some delay in family formation. This finding is supported by an international study by the United Nations (1995), reporting that better educated women consistently became mothers at an older age, which has a flow-on effect into subsequent generations. Thus, higher education is also likely to increase a parent's aspirations for their children (Rinduss et al., 1996). Linked to these expectations, parents may anticipate higher expenses and as such may decide to delay childbearing for economic reasons. Thus, "education changes the economic and social circumstances in women's lives in such a way as to reduce the number of children they want. Education shapes women's values, orientations and attitudes, and tends to favour a small family norm. Education also alters the perceived costs of children, since better educated mothers typically have higher educational aspirations for their children" (United Nations, 1995).

In her intensive study on education and fertility, Cochrane (1979) highlights the fact that education may not only affect an individual's own fertility, but may also have an effect on the fertility of others in the same peer group as well as through generations. For example, one person's education may give the group access to information about contraception or be influential in forming group views on ideal family size and timings, which they may then share with their friends and their children.

## 7.9 Effect of partner's educational level

While the inverse statistical relationship between a woman's education and fertility is already well established, there is also a relationship between the male partner's education and the couple's childbearing decisions. Extensive research indicates that the effect of the husband's education is weaker than the wife's education on overall family size (e.g. Cochrane, 1979; United Nations, 1995). Thus, a partner's education will also have a negative effect on fertility, but to a lesser extent than female education.

This conclusion was tested against the 692,094 New Zealand women who were recorded in opposite-sex couples or two-parent families (referred to in this section as currently partnered) where the female partner specified the number of children. There is a relationship between the educational level of the mother and her current partner, as can be seen in Table 14. Women with a tertiary qualification, as with those with no qualifications, tend to have partners with the same level of educational attainment. However, the educational level of women with a secondary school qualification shows no distinct similarity to the educational level of their partner. In part this simply reflects the social realities of partnership formation.

Table 14:

### Educational Level of Male Partner by Educational Level of Female Partner, for Couples Where Female Partner Specified Number of Children

Educational Level of Male Partner	Educational Level of Female Partner				Total Female Partners
	Tertiary Qualification	Secondary Qualification	No Qualification	Not Specified	
Tertiary qualification	144,075	93,252	62,016	1,023	300,366
Secondary qualification	49,458	76,128	39,588	711	165,888
No qualification	36,804	58,722	120,900	1,713	218,136
Not specified	1,782	2,112	2,934	876	7,704
Total male partners	232,119	230,214	225,438	4,323	692,094

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

In some societies, "large differentials in educational attainment between spouses are a reflection of a society's unequal gender stratification system" (United Nations, 1995). However, results from the 1996 Census indicate no real differential in educational attainment between partners within New Zealand, especially among the younger age groups. Among women, 21 percent had higher educational attainment than their partner, while 29 percent of women had lower educational attainment. The remaining 50 percent of couples had the same educational attainment as each other. This would indicate a fairly equal sex stratification system within New Zealand.

Table 15:

### Educational Level of Male Partner by Female Partner's Response to Number of Children

Highest Qualification of Male Partner	Female Partner Specified Number of Children		Female Partner Did Not Specify Number of Children		Female Partner Objected to Specifying Number of Children	
	Number	Percent	Number	Percent	Number	Percent
Tertiary qualification	300,366	43.4	4,416	29.3	12,519	34.7
Secondary qualification	165,888	24.0	3,219	21.3	8,178	22.7
No qualification	218,136	31.5	5,112	33.9	14,538	40.3
Not specified	7,704	1.1	2,334	15.5	834	2.3
Total	692,094	100.0	15,081	100.0	36,071	100.0

All cells in this table have been randomly rounded to base 3.

Source: 1996 Census of Population and Dwellings

There is still a measure of inequality in educational attainment though. The percentage of currently partnered men (Table 15) with no formal qualification (32 percent) is similar to that for all women (33 percent). However, we also note that men in a relationship are more likely to have gained a tertiary qualification (43 percent) than women (34 percent), and this reflects a pattern seen in the wider population.

For opposite sex couples, the higher the male's education, the lower the female's fertility. Thus, age-adjusted figures (Table 16) show that the average number of children decreases for women as their partner's educational attainment increases. This reinforces the negative correlation between her own educational status and fertility already mentioned. The fact that both men's and women's education have a depressive effect on childbearing suggests that there is both a direct link between education and fertility as well as each being a response to a related set of factors.

Table 16:

### Average Number of Children (Actual and Age-adjusted) by Highest Qualification of Male Partner

Highest Qualification of Partner	Number of Women	Number of Children	Average Number of Children	
			Actual	Age-Adjusted
Tertiary qualification	300,366	633,256	2.1	2.1
School qualification	165,888	343,537	2.1	2.2
No qualification	218,136	580,600	2.7	2.5
Total specified	684,390	1,557,393	2.3	2.3
Not specified	7,704	20,035	2.6	2.6
Total	692,094	1,577,428	2.3	2.3

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

When we consider the male partner's educational attainment, currently partnered women display similar fertility patterns by age as the fertility patterns found when we consider the woman's educational status. However, fertility differentials relative to the male partner's education are smaller than for the female partner's education. The difference in age-adjusted fertility between those without any formal qualification and those with a tertiary qualification is greater with respect to the woman's qualifications (0.60 children per woman) than the man's (0.39 children per currently partnered woman). Also, education differentials for the male partner are virtually the same across successive cohorts. This is not so for their female partners, where fluctuations occur due to such well documented phenomena as delayed childbearing by more educated women. The data confirms that a husband's education adds rather little explanatory power to fertility patterns beyond what can be concluded based on the wife's education.

In summary, then, education is seen to be a very strong determinant in ultimate family size. In part this derives from delays in childbearing which are consequential to education, but it also is related to the fact that women who choose to pursue higher education are also women who tend to form later partnerships and be more likely to balance career with family formation. These patterns indicate that there are links between education and other factors such as income, labour force status and occupational choices, all of which are affected by both educational history and present or past family commitments.

## Chapter 8

# Religion

### 8.1 Background

Religious affiliation has always been seen as an emotive explanatory factor for many different sets of social behaviour. The relationship between fertility and religious affiliation needs to be researched to dispel prejudiced views. More importantly, for demographic estimates and projections, a large part of the growth occurring in the New Zealand population is the result of migration from what might be referred to as 'non-traditional' sources. This also results in the emergence of religions in New Zealand which may or may not reflect different fertility regimes. It is therefore important that we understand whether or not religion influences fertility.

### 8.2 Religious affiliation data

In the 1996 Census, 934,995 women who answered the question on number of children also stated that they had an affiliation with a religion (Table 17). A further 258,009 women in this group stated that they had no religion, while 90,819 either failed to answer the question or objected to doing so.

*Table 17:*

#### Relationship between Specified Religious Affiliation and Specified Number of Children

Religious Affiliation	Number of Children Specified	Number of Children Not Specified	Total
Religion specified	934,995	52,395	987,390
No religion	258,009	15,339	273,348
Not stated	90,819	84,699	175,518
Total	1,283,823	152,433	1,436,256

All cells in this table have been randomly rounded to base 3.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Thus, of those who did answer both questions, 78 percent stated that they affiliated with a religion, 22 percent stated they had no religious affiliation. However, it is important to note that this is self-identified affiliation and does not relate to either religious practice or tell us how much this affiliation is a part of the daily decision-making. The difficulty in relating affiliation to daily practice affects the long-standing groups in particular, since it is clear from historical data that people tick, for example, Anglican on the grounds that they were baptised as Anglican at birth but have had no contact at all with the church except, at most, for weddings and funerals.

In part, this explains why a strong relationship exists between religion and consanguinity, and why religious affiliation cannot be equated to either belief or practice, with children often nominating the religious affiliations of their parents. As a consequence, the religious affiliation of New Zealand's population remains closely tied to past immigration and settlement patterns. This makes it difficult to distinguish the effect that religion has on fertility from the effects of ethnic and other socio-economic differentials.

### 8.3 History and religion

Among the larger Christian religious affiliations found in New Zealand, Anglican, Presbyterian, Catholic and Methodist have a long history in this country, with significant numbers of British and Irish immigrants arriving early in New Zealand's colonial history. Although the proportion of New Zealand's total population belonging to these four churches has fallen in recent years, primarily because of the decline in religious adherence generally, they still accounted for 75 percent of the population who identified a religion in 1996.

Table 18:

**Selected Characteristics of Women of Selected Religious Affiliations**

Religious Affiliation	Women Who Specified Both Religion and Number of Children		Median Age of Women Who Specified Both Religion and Number of Children			Percentage of Women Who Specified Both Religion and Number of Children		
	Number	Median Age	One Ethnicity Only	Never Married	Childless	One Ethnicity Only	Never Married	Childless
Anglican	294,891	47.4	48.0	22.2	26.6	94.9	15.6	23.6
Catholic	194,655	39.2	39.9	21.7	24.1	92.5	24.3	30.4
Ratana	13,200	33.1	34.0	22.8	19.9	80.5	38.0	23.8
Jehovah's Witness	8,061	37.2	38.7	20.9	22.7	83.2	21.4	26.4
Latter Day Saints	15,264	33.4	34.8	20.8	20.0	76.0	32.0	27.0
Methodist	56,013	47.3	47.9	22.8	26.8	94.8	16.3	21.7
Pentecostal	13,755	34.3	34.8	21.0	22.5	89.8	26.6	32.4
Presbyterian	213,966	46.6	47.0	22.3	26.1	96.8	16.4	23.6
Hindu	9,027	33.2	33.2	18.8	22.1	96.9	18.2	30.8
Muslim	4,113	30.6	30.7	19.0	20.7	94.2	21.7	32.3
Jewish	1,944	45.0	45.5	22.1	26.9	90.6	18.4	29.6
No religion	258,009	30.0	30.7	20.7	22.2	91.9	34.5	43.4

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Three of these groups (Anglican, Catholic and Methodist) have similar proportions of Māori adherents as does the population at large. The fourth, Presbyterian, has a lower proportion of Māori adherents, and consequently a marginally lower fertility. This too can be linked to past immigration patterns, with the South Island the preferred destination of Presbyterian immigrants. The religious allegiances of Pacific peoples have tended to reflect the Christian denominations that dominate their home islands, while the more recent inflows from Asia have added to both Christian and non-Christian religions.

**8.4 Anglican, Presbyterian and Methodist women**

The actual and age-adjusted average number of children born to Anglican and Presbyterian women can be compared in Tables 19 and 20. Anglicans and Presbyterians have similar numbers of children with age-adjusted averages of 1.82 and 1.88 children respectively. As expected, overseas-born Anglican women of European and Māori ethnicities have lower fertility than their respective New Zealand-born counterparts.

Table 19:

**Anglican: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities**

Birthplace of Anglican Women	Women Specifying Number of Children	Ethnicity <sup>„</sup>			
		European	Māori	Pacific	Asian
	Number <sup>†</sup>	Percent			
New Zealand born	228,033	92.7	12.5	0.5	0.3
Overseas born	48,774	97.3	0.5	1.3	1.9
Total <sup>‡</sup>	279,534	93.5	10.4	0.6	0.6
		Average number of children born			
New Zealand born	2.10	2.06	2.32	1.59	1.40
Overseas born	2.04	2.04	1.29	2.53	1.59
Total <sup>‡</sup>	2.09	2.06	2.32	1.96	1.51
		Age adjusted average number of children born			
New Zealand born	1.87	1.80	2.59	2.35	1.67
Overseas born	1.59	1.58	2.01	2.32	1.64
Total <sup>‡</sup>	1.82	1.76	2.59	2.33	1.65

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

‡includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Table 20:

### Presbyterian: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities

Birthplace of Presbyterian Women	Women Specifying Number of Children	Ethnicity <sub>s</sub>			
		European	Māori	Pacific	Asian
	Number†		Percent		
New Zealand born	170,745	96.0	4.3	2.7	0.4
Overseas born	29,748	63.3	0.5	31.1	7.5
Total‡	202,446	91.1	3.8	6.9	1.4
		Average number of children born			
New Zealand born	2.11	2.13	2.11	0.89	1.37
Overseas born	2.35	2.18	2.26	2.91	1.43
Total‡	2.15	2.13	2.13	2.24	1.42
		Age adjusted average number of children born			
New Zealand born	1.86	1.84	2.44	2.11	1.67
Overseas born	1.99	1.67	2.36	2.89	1.73
Total‡	1.88	1.82	2.44	2.83	1.71

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

‡Includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Methodists (Table 21) have slightly higher fertility with an age-adjusted figure of 2.01 births per woman. In part this is because of the higher proportion of Māori (12.3 percent) and Pacific (12.4 percent) women among the Methodist adherents. Methodist women of European ethnicity have an age-adjusted average of 1.83, in contrast to 2.90 for Māori and 2.71 for Pacific women. Moreover, 80.8 percent of the Pacific women were born overseas and make up 43.7 percent of all overseas-born women. These women have an age-adjusted average of 2.74 births per woman, compared with 2.25 for their New Zealand-born counterparts. Anglican, Presbyterian and Methodist women all share an older age structure (Table 18) with median ages of approximately 47 years.

Although one in eight Methodists are of Pacific ethnicity, younger Pacific women are less likely to be affiliated to in the Methodist church. The Methodists are also a group with low levels of migration gain. More than half of the overseas-born Methodists have been in New Zealand for over a decade, with few recent arrivals.

Table 21:

**Methodist: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities**

Birthplace of Methodist Women	Women Specifying Number of Children	Ethnicity <sup>„</sup>			
		European	Māori	Pacific	Asian
	Number†	Percent			
New Zealand born	39,837	86.9	15.7	2.9	0.4
Overseas born	12,012	49.7	0.4	43.7	9.2
Total‡	52,437	78.2	12.3	12.4	2.4
		Average number of children born			
New Zealand born	1.05	2.29	2.68	0.78	1.79
Overseas born	1.63	2.05	1.62	2.51	1.18
Total‡	1.48	2.26	2.68	2.20	1.25
		Age adjusted average number of children born			
New Zealand born	2.00	1.87	2.92	2.25	2.42
Overseas born	2.01	1.61	2.62	2.74	1.78
Total‡	2.01	1.83	2.90	2.71	1.88

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

‡includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

**8.5 Catholic women**

A commonly held view is that Catholic women also display higher fertility, but this is largely based on patterns found in other countries where it is more unusual to find members of families having different religious affiliations. This is not seen in the New Zealand case with its high level of religious diversity within families. The median age of Catholic women in the subject population is around eight years younger than their Anglican, Presbyterian or Methodist counterparts. This is largely due to migration history, but may also be due in part to the higher fertility of previous generations, with associated higher losses due to higher levels of mortality in the older age groups. However, if higher fertility were once the case, there is little evidence of it among the current New Zealand Catholic population.

Table 22:

### Catholic: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities

Birthplace of Catholic Women	Women Specifying Number of Children	Ethnicity <sup>„</sup>			
		European	Māori	Pacific	Asian
	Number†	Percent			
New Zealand born	141,105	89.2	15.6	3.0	0.6
Overseas born	38,928	62.8	0.6	19.0	19.8
Total‡	182,007	83.4	12.4	6.4	4.7
		Average number of children born			
New Zealand born	2.05	2.03	2.23	0.98	1.13
Overseas born	2.13	2.22	1.56	2.73	1.38
Total‡	2.08	2.06	2.24	2.10	1.35
		Age adjusted average number of children born			
New Zealand born	2.12	2.04	2.83	2.52	2.03
Overseas born	1.96	1.83	2.45	2.92	1.76
Total‡	2.09	2.00	2.82	2.85	1.77

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

‡Includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

The age-adjusted fertility of Catholic women at 2.09 births per woman (Table 22) is marginally higher than the national average (1.92). But an inflow of Pacific Catholics explains the larger families and also the younger age structure. When these factors are taken into account Catholic fertility would seem very similar to that of the main Protestant religions. As can be seen, Asian Catholics have essentially the same age-adjusted fertility as their European compatriots, and Māori and Pacific Catholics are very similar to their Anglican and Presbyterian counterparts.

## 8.6 Pentecostal, Mormon and Ratana women

In comparison to Catholics and Protestants, nearly a quarter of Pentecostals (Table 23) are also Māori or Pacific peoples, yet their age-adjusted average number of children (3.18 and 2.85) is 10 and 5 percent respectively higher than Methodists. Nevertheless, Pentecostal women have a median age more than 13 years younger than Methodists. It is possible that some of their higher fertility is owed to a general shift among Māori and Pacific women to younger parenting in the 1970s and 1980s. It is significant, though, that higher fertility is also noted among the Pentecostal women of European ethnicities, and among the charismatic and New Age movements.

Women belonging to the Church of Jesus Christ of the Latter Day Saints (Mormon) are noted for having large families, as are the indigenous Māori Christian churches (of which Ratana is by far the largest). As can be seen in Tables 18, 24 and Table 25, both groups have similar median ages, 34.2 years and 33.7 years respectively, and similar high age-adjusted fertility of 3.1 and 3.2 children per woman respectively.

Table 23:

**Pentecostal: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities**

Birthplace of Pentecostal Women	Women Specifying Number of Children	Ethnicity,,			
		European	Māori	Pacific	Asian
	Number†	Percent			
New Zealand born	10,662	87.7	19.5	3.3	1.0
Overseas born	2,361	66.9	1.0	16.0	19.4
Total‡	13,146	83.8	16.3	5.6	4.4
		Average number of children born			
New Zealand born	2.47	1.87	2.38	1.19	1.46
Overseas born	2.33	2.11	1.33	2.37	1.28
Total‡	2.41	1.91	2.37	1.81	1.32
		Age adjusted average number of children born			
New Zealand born	2.30	2.19	3.19	1.94	2.33
Overseas born	2.04	1.99	1.60	2.97	1.88
Total‡	2.25	2.15	3.18	2.85	1.97

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

‡Includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Table 24:

**Church of Jesus Christ of the Latter Day Saints: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities**

Birthplace of Church of Jesus Christ of the Latter Day Saints Women	Women Specifying Number of Children	Ethnicity,,			
		European	Māori	Pacific	Asian
	Number†	Percent			
New Zealand born	10,692	43.6	72.5	12.6	1.6
Overseas born	3,066	24.9	3.3	78.1	4.5
Total‡	13,977	39.3	57.2	27.1	2.2
		Average number of children born			
New Zealand born	2.51	2.35	2.65	1.25	1.75
Overseas born	2.84	2.65	1.37	2.94	2.36
Total‡	2.59	2.40	2.64	2.34	2.03
		Age adjusted average number of children born			
New Zealand born	3.10	2.82	3.29	3.28	2.53
Overseas born	3.10	2.70	3.24	3.36	2.89
Total‡	3.09	2.80	3.28	3.34	2.97

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

‡Includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Table 25:

### Ratana: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities

Birthplace of Ratana Women	Women Specifying Number of Children	Ethnicity,			
		European	Māori	Pacific	Asian
	Number†	Percent			
New Zealand born	11,550	20.2	97.3	2.5	0.8
Overseas born	42	70.7	70.7	14.6	2.4
Total‡	11,775	20.4	97.2	2.5	0.8
		Average number of children born			
New Zealand born	2.57	2.12	2.57	2.05	1.61
Overseas born	1.46	1.24	0.72	2.33	2.00
Total‡	2.57	2.12	2.57	2.07	1.60
		Age adjusted average number of children born			
New Zealand born	3.22	2.99	3.23	3.39	2.80
Overseas born	1.92	1.57	1.46	0.73	0.18
Total‡	3.21	2.96	3.22	3.41	2.79

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

‡includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Yet once the ethnic compositions of these churches are examined, their fertility is largely self-explanatory. Eighty-five percent of Mormons are Māori and/or Pacific peoples, while 98 percent of Ratana are Māori. The effects of multiple ethnicity are immediately clear in this case, with one in five women of Māori being also of European ethnicity, which results in an apparently high average number of children for European Ratana women (relative to European norms).

## 8.7 Buddhist, Hindu, Muslim and Jewish women

In recent years in New Zealand, with changes in sources of migrants, major non-Christian religions have developed rapidly. The majority of these groups are associated primarily with recent migration and have highly volatile populations, but remain centred on a core of long established traditions in this country. Among these, Buddhism and Hinduism, by 1996, were numerically comparable in size to the Church of Jesus Christ of the Latter Day Saints, Pentecostal and Ratana. Of interest too is the smaller, but equally rapidly growing, number of followers of Islam. Of particular interest is whether or not, given that many of the followers of these religions are Asian by birth and by ethnicity, there is a relationship between their religion and their fertility which could have an impact on the future of New Zealand's demography.

The patterns seen in Table 26 are extremely interesting because they show that, for Hindu and Muslim followers, those of Asian ethnicities have a similar average number of children. This contrasts with people of other religious affiliations. Similarly, age-adjusted averages for the three religions range from 1.86 children per woman for Buddhist women, through 2.13 for Hindu women to 2.45 for Muslim women. This pattern is apparent in all ethnicities. At first sight, this appears odd until we consider the birthplace of the overseas-born women who make up the majority of each of these groups.

Among the Buddhist women, nearly 40 percent were born in Northeast Asia, an area with a relatively low fertility rate of long standing, comparable with the 10 percent of women in this group who were born in New Zealand or Europe. This offsets the higher fertility rates of those born in Southeast Asia and Sri Lanka. In contrast, more than three in every four of the overseas-born Hindu women were born in India or Fiji, both with higher fertility regimes.

Table 26:

**Buddhist, Hindu and Muslim: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities**

Religious Affiliation	Women Specifying Number of Children	Ethnicity <sup>„</sup>			
		European	Māori	Pacific	Asian
	Number†	Percent			
Buddhist	10,551	11.9	1.4	0.3	88.4
Hindu	8,553	6.3	0.9	1.8	94.1
Muslim	3,789	11.1	1.6	4.1	63.3
		Average number of children born			
Buddhist	1.43	1.28	1.69	1.70	1.45
Hindu	1.63	1.57	1.58	1.62	1.62
Muslim	1.71	1.72	1.47	1.86	1.59
		Age adjusted average number of children born			
Buddhist	1.86	1.43	2.67	1.37	1.92
Hindu	2.13	1.78	1.51	2.24	2.16
Muslim	2.45	1.98	1.64	2.56	2.51

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

#includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Both Hinduism and Buddhism have a significant number of New Zealand-born adherents, with considerably lower fertility than the overseas-born members. For Hindu women, the average number of children of the New Zealand-born is 1.85 compared with 2.17 for the overseas-born group. The corresponding figures for Buddhist women are 1.54 and 1.89 respectively.

Muslim women appear to have higher fertility, and this might be not unexpected. The New Zealand-born component has on average 2.21 children per woman, with those born overseas averaging 2.48 children per woman. Childlessness is also much lower for this group, so that not only are these women tending to have more children, but more women are having children. However, religion is not the main driver because higher average numbers of children are not seen among Muslim women for all ethnicities. The Māori Muslim women have the lowest fertility of any religious affiliation, while the European Muslim women approximate the national average. The predominance of Pacific, South Asian and Middle Eastern-born women explains most of this feature, though not all.

A complete contrast is seen with another of the Ibrahimic religions. Judaism has a small following in New Zealand (Table 27), split almost equally between those born in New Zealand and those born overseas. These women are predominantly of European ethnicity, though around 11 percent also have non-European ethnicities. This group has an atypically low fertility.

Table 27:

### Jewish: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities

Birthplace of Jewish Women	Women Specifying Number of Children	Ethnicity <sup>1</sup>			
		European	Māori	Pacific	Asian
	Number <sup>‡</sup>		Percent		
New Zealand born	828	97.3	3.5	0.4	0.4
Overseas born	951	88.8	0.7	0.0	1.2
Total <sup>‡</sup>	1,806	92.8	2.0	0.2	0.8
		Average number of children born			
New Zealand born	1.57	1.56	1.55	1.33	0.00
Overseas born	1.65	1.69	1.86	0.00	1.64
Total <sup>‡</sup>	1.62	1.63	1.57	1.33	1.67
		Age adjusted average number of children born			
New Zealand born	1.51	1.49	2.48	0.37	0.00
Overseas born	1.39	1.40	0.83	0.00	1.27
Total <sup>‡</sup>	1.44	1.44	2.10	0.37	1.43

<sup>1</sup>People may have more than one ethnicity and may be counted in more than one category.

<sup>‡</sup>Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

<sup>‡</sup>Includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

**It is difficult to attribute this low fertility directly to Judaism, though, since, among couples, half of all people** with a stated affiliation to Judaism do not have Jewish partners. In fact, for two-parent families where both partners are Jewish, the age-adjusted average number of children is 1.68, significantly higher than for all Jewish women but still low compared to other women. Moreover, the median age of all Jewish women, at 45 years, is relatively high, exceeded only by Presbyterian, Methodist and Anglican women among the major groups. Jewish women have a much lower proportion of Māori and Pacific ethnicities than other groups. A higher proportion of Jewish women also have no children, but the median ages of this group for each birthplace category is slightly lower than the other three groups, though still much higher than for women of other religious affiliations.

## 8.8 Women with no religious affiliation

To answer the question of whether women who specify a religious affiliation at the time of the census are more or less likely to have more children, we should compare these women with those women who stated that they had no religion (Table 28). There were more Anglican women than women who stated that they have no religion; however, the latter population is numerically significant. In almost every respect, the New Zealand-born component of this population mirrors the Anglican population in its ethnic composition, fertility patterns and age structure. A similar comparison with other affiliations, once the effects of ethnicity, location and birthplace are accounted for, reveals a similar pattern: namely, that religion is not a determinant in fertility in New Zealand.

Table 28:

**Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities, Women Who Stated They Had No Religion**

Birthplace of Women with No Religious Affiliation	Women Specifying Number of Children	Ethnicity <sup>„</sup>			
		European	Māori	Pacific	Asian
	Number†	Percent			
New Zealand born	210,639	92.8	13.7	1.5	1.4
Overseas born	43,638	69.2	0.8	2.0	29.6
Total‡	256,440	88.7	11.6	1.6	6.2
		Average number of children born			
New Zealand born	1.24	1.22	1.34	0.93	0.80
Overseas born	1.38	1.44	0.74	1.90	1.20
Total‡	1.27	1.25	1.33	1.15	1.13
		Age adjusted average number of children born			
New Zealand born	1.81	1.77	2.42	2.10	1.69
Overseas born	1.54	1.49	1.25	2.59	1.75
Total‡	1.75	1.71	2.42	2.40	1.75

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

‡Includes birthplace not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

### 8.9 Religious affiliation of partners

There is a continuing trend towards women entering partnerships other than by way of formal legal marriage<sup>12</sup>, especially among those in their twenties. However, there does seem to be some correlation between marriage and religious affiliation. Women in other partnerships with children account for only 7 percent of those affiliated to a Christian religion. For women affiliated to major non-Christian religions (for example, Islam, Buddhism, Hinduism), only around 5 percent are in other partnerships. This contrasts with those with no religious affiliation, at just over 10 percent. It must be noted, however, that since there is a strong correlation between religion and ethnicity, other cultural factors<sup>13</sup> will also at least partly explain this pattern.

The key reason why it is not possible to then attribute a causal relationship between fertility patterns, marital status and religious affiliation is that in New Zealand there is a very high level of inter-religion partnerships. This ranges from the Exclusive Brethren with only 8 percent having partners of different religious affiliations to the Quakers with no partners of the same religion. However, these are small groups numerically and more typical are the major groups as shown in Table 29. Typically, around half of all women have a different religious affiliation than their partners, with the larger and longer established groups having proportionally fewer than half of their partnered affiliates with partners of the same affiliation

<sup>1</sup> Some women, of course, do marry in a religious ceremony but do not register the marriage formally.

<sup>2</sup> Since many of the people in these categories are overseas-born, it remains to analyse this in relationship to immigration policies and practices.

Table 29:

**Religious Affiliation by Religious Affiliation of Their Partners, Women Aged 15 Years and Over Resident in New Zealand Specifying Religious Affiliation**

Religious Affiliation of Female Partner	Number of Couples	Partner's Affiliation Same	Partner's Affiliation Different
		percent	
Hindu	5,937	85.82	14.18
Islam	2,457	85.15	14.85
Jehovah's Witness	4,407	65.35	34.65
Buddhist	5,580	64.02	35.98
Pentecostal	7,470	62.45	37.55
Latter Day Saints	6,657	56.33	43.67
Jewish	1,023	50.95	49.05
Presbyterian	119,496	49.13	50.87
Anglican	166,773	49.10	50.90
Catholic	104,505	42.85	57.15
Methodist	31,095	37.48	62.52
Ratana	5,130	27.04	72.96

All cells in this table have been randomly rounded to base 3.

Source: 1996 Census of Population and Dwellings

To sum up, religion is not a significant determinant in fertility. It may have a small measure of influence on fertility but, once we take other factors such as ethnicity and birthplace into account, the apparent differences rapidly vanish. The degree to which inter-religion relationships are a feature of the New Zealand population supports the conclusion that religious affiliation is a very weak driver in social dynamics.

## Chapter 9

### Health and Disability

#### 9.1 Data source and limitations

In this chapter we briefly consider the relationship between health issues and fertility to the extent that this is possible using data (Table 30) from the 1996 Census of Population and Dwellings.

Table 30:

#### Relationship between Specified Health Problems and Disability and Specified Number of Children

Health and Disability Status	Number of Children Stated	Number of Children Not Stated	Total
No disability indicated	1,061,568	73,392	1,134,954
Disability indicated	208,104	20,514	228,618
Not specified	14,154	58,530	72,684
Total	1,283,823	152,436	1,436,256
No specified health problems	1,055,784	71,283	1,127,070
Specified health problems	160,422	15,861	176,286
Not specified	67,614	65,289	132,903
Total	1,283,823	152,436	1,436,256
Had difficulties with everyday activities which people your age can usually do	125,910	12,588	138,498
Had difficulties with communicating, mixing with others or socialising	48,081	5,841	53,922
Had difficulties with any other activity,, which people your age can usually do	80,436	8,286	88,719

„These are activities which the respondent does not consider to affect everyday activities or communication.

Subject population: Women aged 15 years and over resident in New Zealand.

All cells in this table have been randomly rounded to base 3.

Source: 1996 Census of Population and Dwellings

As with other census data, this data has no history except to the extent that the disabilities and health problems sought by the questionnaire were required to be of at least six months duration. We therefore cannot know for certain whether the problems pre-existed or were consequential or subsequent to childbearing. Another difficulty is that the group who did not answer all or any of the relevant questions is large relative to the group who specified a disability or health problem. Moreover, the questions were not designed to give an intimate insight into disability, but had the primary purpose of determining base data for the subsequent more detailed disability survey.

#### 9.2 Ethnic differences

There is some evidence, after age-adjustment (Table 31), that there is a slight tendency for women with health problems to have had higher average numbers of children. This is very slightly stronger among Pacific and Asian women than European and Māori women, but the difference is only around one-quarter of a child on average, and the quality of the data in this case is not strong enough to regard this as significant. It is also noteworthy that the ethnic profile of the women reporting disabilities is quite different from those not doing so, with only 3.4 percent of this group being of Pacific ethnicities and 2.6 percent Asian, in contrast to 4.4 and 5.1 percent respectively of those women who had no specified health problems.

Table 31:

### Average Number of Children (Actual and Age-adjusted) by Health Status and Ethnicity

Health Status	Women Specifying Number of Children	Ethnicity <sup>„</sup>			
		European	Māori	Pacific	Asian
	Number†	Percent			
Specified health problems	158,850	88.0	12.0	3.4	2.6
No specified health problems	1,048,983	85.3	11.6	4.4	5.1
Total specified	1,207,833	90.1	12.5	4.6	5.0
	Average number of children born				
Specified health problems	2.29	2.20	2.69	2.98	2.01
No specified health problems	1.86	1.84	2.02	1.95	1.31
Total specified	1.92	1.89	2.12	2.08	1.37
	Age adjusted average number of children born				
Specified health problems	2.05	1.92	2.81	3.00	2.04
No specified health problems	2.02	1.95	2.74	2.75	1.78
Total specified	2.03	1.95	2.76	2.80	1.82

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Table 32:

### Average Number of Children (Actual and Age-adjusted) by Specified Health Problems and Ethnicity

Health Problems	Women Specifying Number of Children	Ethnicity <sup>„</sup>			
		European	Māori	Pacific	Asian
	Number†	Percent			
Had difficulties with‡ everyday activities	125,910	88.0	11.3	3.0	2.2
socialising	48,080	83.7	13.9	4.6	3.3
other	80,435	88.0	12.2	3.4	2.1
	Average number of children born				
Had difficulties with‡ everyday activities	2.36	2.27	2.84	3.12	2.14
socialising	2.16	2.05	2.60	2.93	1.96
other	2.16	2.07	2.54	3.00	2.00
	Age adjusted average number of children born				
Had difficulties with‡ everyday activities	2.06	1.94	2.84	3.02	2.06
socialising	1.96	1.78	2.74	2.95	2.06
other	1.96	1.85	2.72	2.99	2.00

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

‡Labels abbreviated from:

Had Difficulties with Everyday Activities that People Your Age Can Usually Do.

Had Difficulties with Communicating, Mixing with Others or Socialising.

Had Difficulties with Any Other Activity that People Your Age Can Usually Do.

Subject population: Women aged 15 years and over resident in New Zealand.

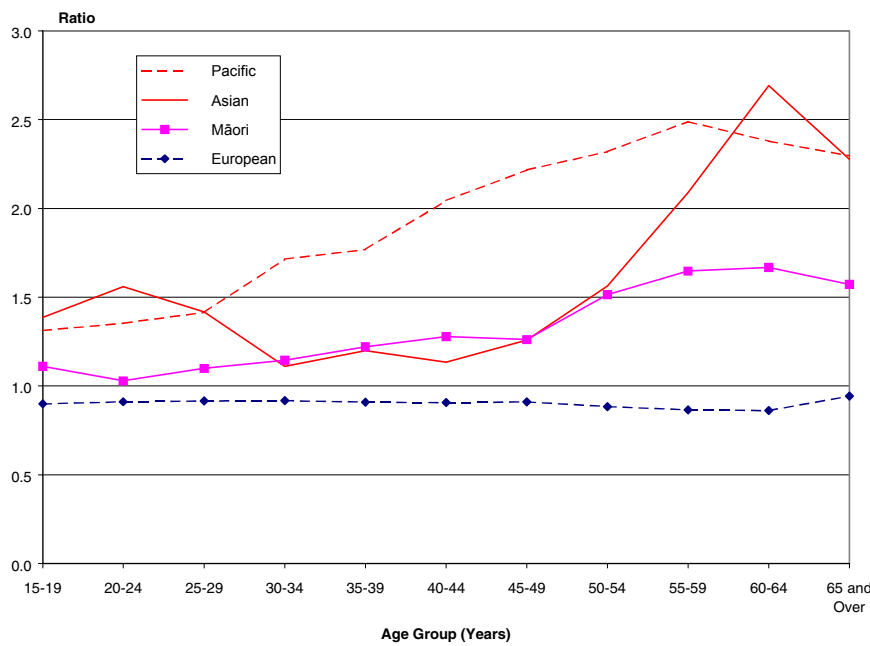
Source: 1996 Census of Population and Dwellings

It is known that access to health services and health education is not uniform throughout the population and this may be a factor, though a cultural reluctance to complain is certainly an issue in some cases. However, those who specifically stated they had no problems are distributed proportionally among the total adult female population. This could imply that a disproportionate number of women in these groups with health difficulties failed to answer the relevant questions either by choice or because the questions were difficult.

Asian and to a lesser extent both Māori and Pacific women are under-represented in these figures. It may be surmised that the differentials would be greater still if there is a tendency among these groups to not answer the question rather than provide an affirmative response. This apparent under-reporting occurs most strongly at all ages for Asian women and for Pacific women in the older age groups (Figure 14).

Figure 14:

**Ratio of Non-Respondents to Health Problem Questions who Specified Ethnicity to All Women who Specified Ethnicity, Women Aged 15 Years and Over Resident in New Zealand**



Source: 1996 Census of Population and Dwellings

Among those women who did specify both health problems and number of children, it is found that Asian and Pacific women with specific health problems have around 6 to 14 percent more children on average than all women of their ethnicity. For example, Asian women who have difficulty with everyday activities have on average 2.06 children when adjusted for age (Table 32), which is 14 percent higher than the total for the group of 1.82 children (Table 31). By contrast, Māori women show no discernible differences in this respect, and European women who have difficulty in communicating and socialising have an age-adjusted average number of children nearly 10 percent lower at 1.78 children, compared to 1.95 for European women without health problems.

From this data it may be said that there appears to be deleterious consequences related to the number of children to which a woman has given birth. However, the level of non-response to these questions and the skewed nature of their distribution makes it difficult to reach conclusions on the implications of the data without considering it in conjunction with two further pieces of evidence.

**9.3 Smoking**

Tobacco smoking has been shown in a wide range of studies to be related strongly to health issues. An interesting question therefore arises as to whether there is a correlation between smoking history and fertility outcomes. This correlation is intimately connected to a number of other socio-economic factors, but the multivariate analysis of these is beyond the scope of the present study. The data however is suggestive. For all women, with the exception of Pacific women, those who have never smoked have had marginally fewer children. There is likely to be an association here with educational factors in particular. The connection between not smoking and low fertility reveals an important factor in overall fertility though, because it can be

seen from Table 33 that Māori women are over-represented and Asian women under-represented among smokers and ex-smokers. This is likely to be a consequence of cultural differences in attitude to smoking as much as of other factors.

Table 33:

### Smoking Status: Average Number of Children (Actual and Age-adjusted) for Selected Ethnicities

Smoking Status	Women Specifying Number of Children	Ethnicity <sup>..</sup>			
		European	Māori	Pacific	Asian
	Number <sup>..</sup>	Percent			
Smoker	277,050	79.4	25.0	5.2	1.3
Ex-smoker	240,561	92.6	10.8	2.0	1.0
Never smoked regularly	716,887	85.6	7.0	4.8	7.3
Unidentifiable	7,500	79.2	16.5	7.8	5.4
Not specified	31,932	81.9	12.1	6.0	5.5
Total	1,273,930	85.4	11.8	4.4	4.8
		Average number of children born			
Smoker	1.87	1.76	2.18	1.98	1.30
Ex-smoker	2.14	2.11	2.44	2.13	1.48
Never smoked regularly	1.85	1.85	1.86	2.09	1.36
Unidentifiable	1.99	1.94	2.11	2.11	1.58
Not specified	2.13	2.08	2.46	2.38	1.59
Total	1.92	1.89	2.12	2.08	1.37
		Age adjusted average number of children born			
Smoker	2.20	2.03	2.92	2.82	1.88
Ex-smoker	2.05	2.00	2.72	2.65	1.76
Never smoked regularly	1.94	1.89	2.55	2.80	1.81
Unidentifiable	2.16	2.01	2.76	2.79	2.00
Not specified	2.14	2.01	2.85	2.85	1.94
Total	2.03	1.95	2.76	2.80	1.82

..People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

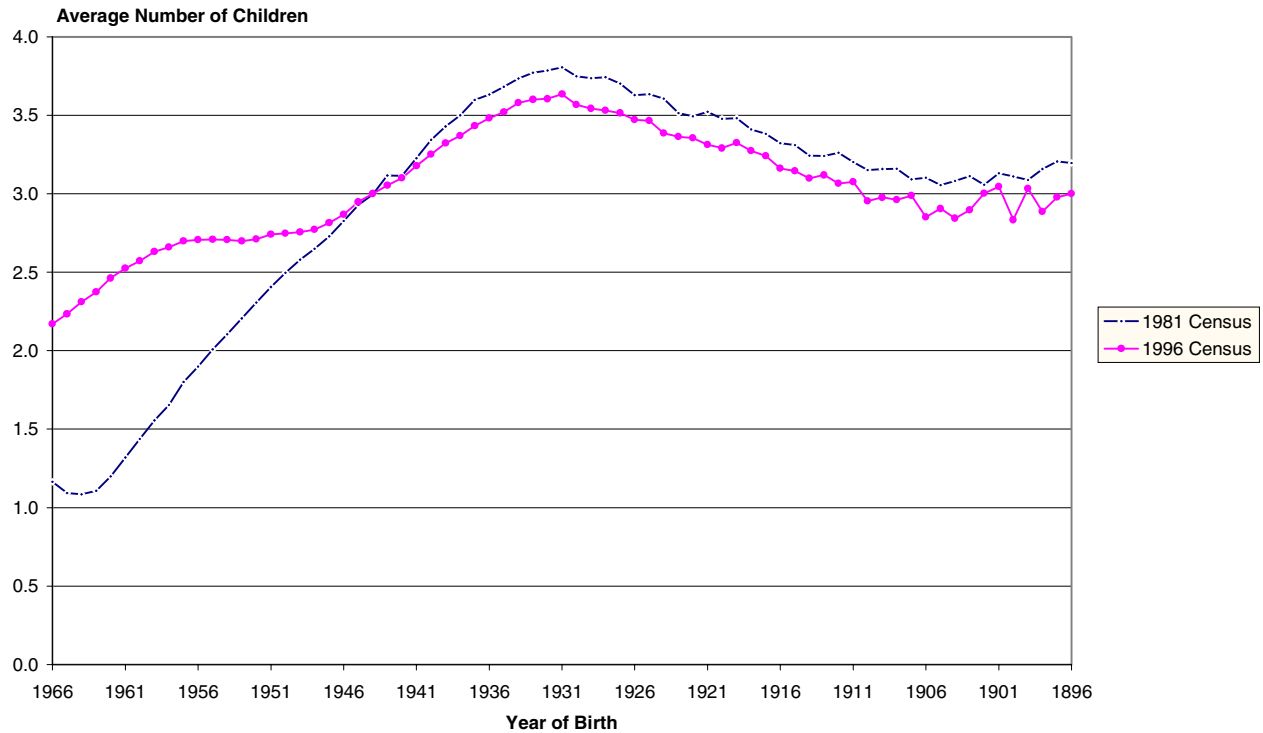
## 9.4 Fertility and longevity

Related to health and disability issues is also the vexed question of the relationship between fertility and longevity. Intuitively it would be expected that either having many children or having no children would have a negative effect. The first arises because of the physical consequences of repeated childbirth, especially among older women whose childbearing occurred when health facilities were less advanced. The second arises because of the less tangible factors of loneliness and reduced care in old age. But are these assumptions valid?

There is only a very limited potential to address this issue using census data. One of the possible ways is to look at the older age groups in 1996 and compare them with the same birth cohorts using the 1981 data. By restricting the data only to those women who were born in New Zealand, we can get data which may determine if these factors have any effect. However, we have to acknowledge that losses to these cohorts will occur as a result of death and out-migration. Similarly there will be gains to the population due to return migration. Moreover, we cannot distinguish those losses associated with the long-term health effects of childbearing from the losses due to other unrelated causes of death.

Figure 15

**Average Number of Children by Birth Cohort 1896-1966, Usually Resident New Zealand-Born Mothers**



Source: 1981 and 1996 Censuses of Population and Dwellings

By comparing the average number of children per woman found in a particular New Zealand-born birth cohort in the 1981 Census with the same group in the 1996 Census (Figure 15), we can observe directly the effect of the passage of time, data quality and other factors being equal. We should find that differences at these two points in time show genuine consequences of childbearing, especially if we consider that losses due to migration will tend to affect those who have had fewer children and tend therefore to push the average up. For this purpose we look at women who have had at least one child.

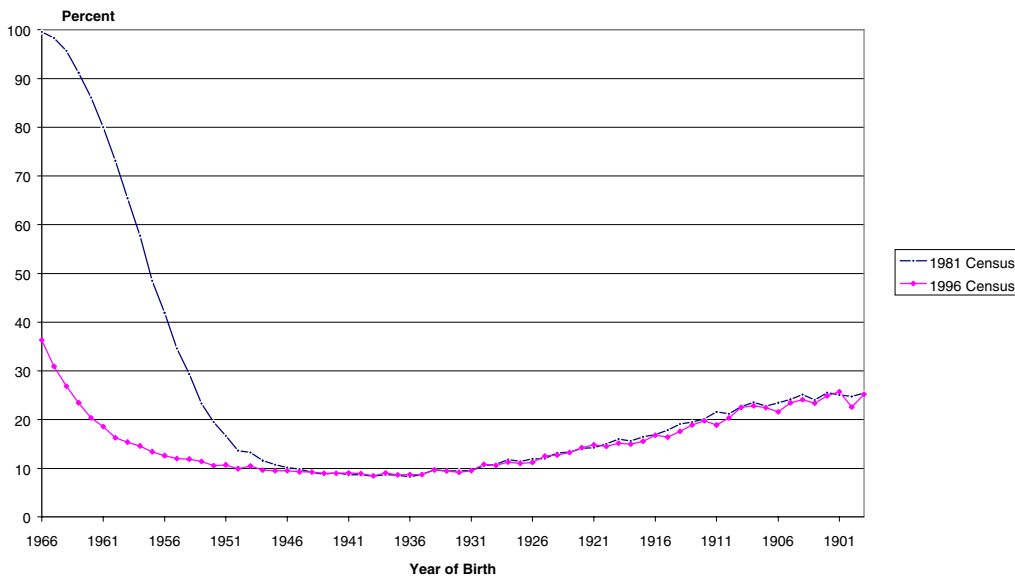
It is immediately apparent that, for women whose childbearing is complete, the average number of children per woman was consistently lower in 1996 than it was in 1981. One explanation of this phenomenon is that women who experience many birth events are less likely than women with fewer birth events to survive to a particular age.

However, other factors contribute to both longevity and childbearing. For example, socio-economic factors, such as wealth and disposable income, as well as ethnic or cultural factors, may contribute in ways as yet undefined. Poverty, in particular, is associated in a wide range of studies with higher fertility, greater incidence of health failures and shorter lives.

<sup>11</sup> A limitation in this data is that it is suspected, though not proven, that in some cases people used the tickboxes of the routing questions to indicate that they had some tertiary education but not a complete qualification. It is therefore a dilemma whether to treat

Figure 16:

### Percentage of Women with No Children by Birth Cohort 1893-1966, Usually Resident New Zealand Female Population



Source: 1981 and 1996 Censuses of Population and Dwellings

The second assumption, that women who have had no children do not live as long as women who have had one or two children, is not shown by the data available from the census (Figure 16). There has been no change in the proportion who are childless among the older age groups between 1981 and 1991, implying that losses among the childless women occur at the same rate as for mothers. This figure also serves to show that the differences shown in Figure 15 are likely to be not due merely to serendipitous data. There are relatively more losses among mothers with larger numbers of children, causing the drop in the average number of children for women in the older age groups.

Thus, in this chapter we have not only shown that there are health outcomes associated with different fertility outcomes, but that there are a number of other factors which influence these. There is evidence enough, though, to suggest that research into the inter-relationships between these factors would be profitable.

## Chapter 10

# Work

### 10.1 Introduction

There has been, in recent years, a general belief that the motherhood role conflicts with the work role in any modern society. The incompatibility between these two roles is managed either by scheduling of life events (such as childbirth, entry into and exit from the labour force and division of labour) or by resources provided by others (by members of the support network or by the formal sector). In 1976, Ware in her investigation into fertility and workforce participation amongst Australian women reported that "it is not socially acceptable for women with pre-school age children to work outside the home". Yet, in New Zealand 20 years later, 57 percent of New Zealand women whose youngest child was between one and four years of age were in paid employment at the time of the 1996 Census.

Participation of women in paid work is strongly associated with lower fertility. Flórez (1996), in an analysis of Colombian women, found that labour-force experience exerts a negative effect on fertility, independently of the type of work activity. Similarly, an analysis of the results from the 1991 Census of Canada (Statistics Canada 1993) concluded that women who were currently working or had recently worked in the paid labour force had lower fertility than those who had not. New Zealand research has shown similar significant linkages between family size and labour market decisions and between the timing of first births and previous work experience (Dharmalingam, 1997; Hillcoat-Nallétamby, 1999).

### 10.2 Employment and fertility

The 1996 Census provides a snapshot<sup>14</sup> at a point in time of New Zealand fertility differentials relative to a woman's labour force status. There were 1,010,523 usually resident women aged 15-59 years who specified the number of children (Table 34). In this chapter, we restrict the analysis to these ages because women aged 60 years and over are much less likely than men to be still in the labour force.

Labour-force status is derived from the answers to several employment-related questions (relating to either the number of hours and type of work, or work intentions) asked at the census. There are four labour-force categories: full-time participation in the workforce; part-time participation in the workforce; unemployed and actively seeking work (referred to simply as unemployed for the purposes of this study – these are people who are in the labour force, but not the workforce); and those not in the labour force (which includes those who stated they were unemployed but did not state that they were actively seeking employment). Full-time participation in the workforce is defined as working a total of 30 hours or more per week in one or more jobs, for financial gain, or as an unpaid worker in a family business. Similarly, part-time participation refers to working at least one but not more than 29 hours per week (Statistics New Zealand 1998a).

The labour force data only relates to the labour-force status of an individual at the time of the census. Given labour market dynamics and the reality of family life, it is by no means certain whether this relates to a normal or to a particular state of affairs. For example, a woman who is in advanced pregnancy or has very recently given birth is less likely to be in full-time paid employment than a woman whose children have grown up. Unfortunately, the census data does not provide any hint of whether a respondent is pregnant or not, and newborn babies are commonly missed by the census enumeration process, so we also do not necessarily know whether she is caring for a very young baby or not.

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<sup>14</sup> We do not have the reproductive histories of these women, but merely the consequences of these histories. This distinction has very important impacts on how we may interpret the data. The work of Dharmalingam, Hillcoat-Nallétamby et al, on the other hand, was based on survey work specifically designed to examine reproductive histories at the individual level, but covered a relatively small sample of women.

Table 34:

### Relationship between Specified Labour Force Status and Specified Number of Children, Usually Resident Female Population Aged 15-59 Years

Labour Force Status Stated or Imputed	Number of Children Born Stated	Number of Children Born Not Stated	Total
Employed full-time	426,165	35,016	461,181
Employed part-time	235,056	14,481	249,534
Unemployed and actively seeking work	60,156	6,216	66,375
Not in labour force	289,143	29,232	318,378
Not available	..	32,391	32,391
Total	1,010,523	117,336	1,127,859

All cells in this table have been randomly rounded to base 3.

Source: 1996 Census of Population and Dwellings

Among families coded in the 1996 Census, the female caregiver's labour force participation rate increased with the age of the youngest child in the family (Table 35). This was expected, since children become more independent as they grow up. Moreover, the age of the youngest child is associated with the mother's stage in her reproductive history. In a regime with late on-set of childbearing and small families, the vast majority of women whose youngest child is more than five years old will have finished childbearing.

Table 35:

### Percentage Distribution by Labour Force Status of Mother, Aged 15-59 Years, in Opposite-sex Two Parent Families by Age of Youngest Child in Family

Age of Youngest Child (Years)	Labour Force Status of Mother				Total
	Employed Full-Time	Employed Part-Time	Unemployed and Actively Seeking Work	Not in the Labour Force	
Less than 1	13.6	22.0	4.3	59.9	100.0
1-4	23.8	32.9	4.7	38.3	100.0
5-9	37.0	36.2	4.7	21.8	100.0
10-14	48.8	30.1	3.4	17.4	100.0

Source: 1996 Census of Population and Dwellings

However, Willekens (1989) shows that cross-sectional surveys overestimate the interdependence between fertility and employment. He concludes that longitudinal data is a better measure and that early experience is a good predictor of subsequent behaviour. As Cramer (1980) and Willekens (1989) have shown, a woman who was in the labour market before the birth of her first child is much more likely to rejoin at a later stage. Hence, even though a woman may stop working during certain stages of her reproductive life, having acquired some work experience makes her later return more likely. This view has been more recently confirmed by Flórez (1996), who also shows that the effect of work activity on fertility is a long-term, and not a short-term, effect.

## 10.3 Work and education

Educational achievements also are related to labour force participation. It was shown in Chapter 7 that education is one of the key determinants of the number of children a woman is likely to have. Table 36 shows the inter-relationship between education, labour force status and the bearing of children. While those with no qualifications show only small variances in labour force participation, there is a marked difference among those women with tertiary qualifications, with three-quarters in the labour force.

Table 36:

### Percentage of Women Aged 15-59 Years by Highest Qualification, Number of Children and Labour Force Status

Number of Children and Labour Force Status	Highest Qualification				Total
	Tertiary	Secondary	None	Not Specified	
<b>No children</b>					
Employed full-time	70.3	45.8	30.5	36.5	51.7
Employed part-time	13.0	23.7	17.3	17.2	18.7
Unemployed and actively seeking work	5.7	7.7	11.3	9.4	7.6
Not in labour force	11.0	22.7	41.0	36.9	21.9
Total	100.0	100.0	100.0	100.0	100.0
<b>At least one child</b>					
Employed full-time	42.8	36.1	31.3	36.6	36.7
Employed part-time	29.1	27.8	21.1	17.0	25.9
Unemployed and actively seeking work	4.1	4.5	6.2	6.3	5.0
Not in labour force	24.0	31.7	41.3	40.2	32.5
Total	100.0	100.0	100.0	100.0	100.0
<b>Not stated or objected to stating</b>					
Employed full-time	53.0	42.4	29.8	14.3	29.8
Employed part-time	17.9	19.6	15.1	4.9	12.3
Unemployed and actively seeking work	6.4	7.2	8.2	2.2	5.3
Not in labour force	22.7	30.9	46.9	9.8	24.9
Not available	..	..	..	68.8	27.6
Total	100.0	100.0	100.0	100.0	100.0
<b>Total</b>					
Employed full-time	53.4	40.5	31.0	16.3	40.9
Employed part-time	22.6	25.6	19.8	6.0	22.1
Unemployed and actively seeking work	4.8	6.0	7.5	2.6	5.9
Not in labour force	19.1	27.9	41.7	12.4	28.2
Not available	..	..	..	62.8	2.9
Total	100.0	100.0	100.0	100.0	100.0

Source: 1996 Census of Population and Dwellings

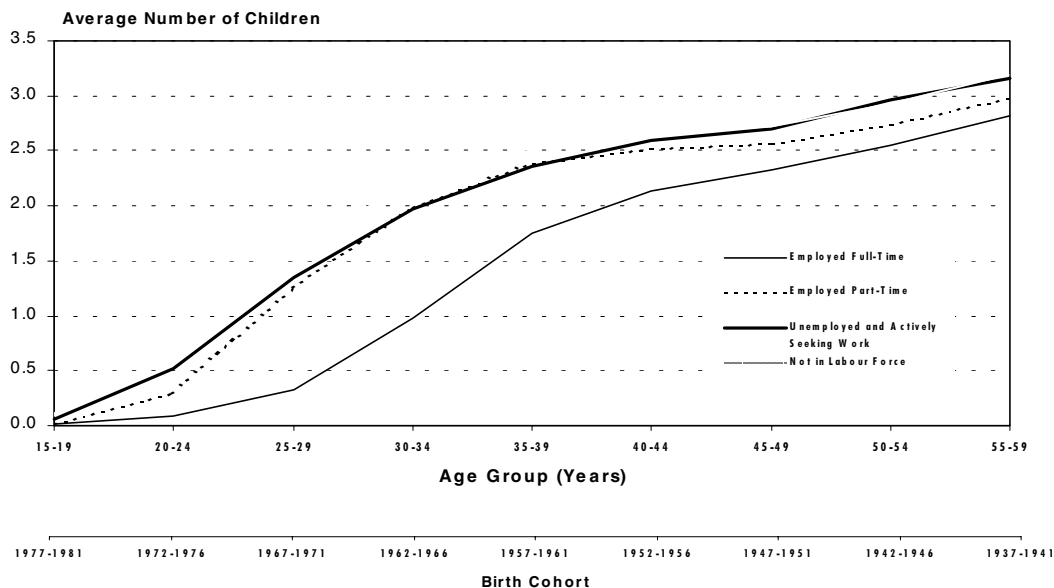
Overall, women were almost twice as likely to be employed full-time (41 percent) as part-time (22 percent). However, for women who were childfree, 52 percent were employed full-time compared to 19 percent part-time. Women with qualifications were much more likely to be employed than were those without qualifications.

## 10.4 Age and employment

Women employed either full-time or part-time had similar age structures (median age of 37 and 36 years respectively). Unemployed women have a much younger age structure with a median age of 28 years (about nine years younger than women in employment) and 43 percent under the age of 25 years. Women who were not in the labour force had a median age of 34 years, but had a strongly bipolar age structure, consisting mainly of women who had either not yet entered, or who had left, the labour force. A slight increase in the proportion of women in this group occurs during the prime childbearing ages (25-34 years) when many women withdraw temporarily from the workforce.

Figure 17:

### Average Number of Children per Woman by Age and Labour Force Status



Source: 1996 Census of Population and Dwellings

Among women born between 1937 and 1976, for the three groups (employed full-time, employed part-time and not in the labour force), there is a strict linear relationship between the average number of children per woman and labour force status (Figure 17). Fertility levels for women aged 25 years and over who were employed either part-time or full-time converge with increasing age. As might be expected, the differentials between these two labour force groups were greatest at the main childbearing ages. For those aged 25-34 years, women working part-time had 1.08 more children than women working full-time, but this gap narrowed to 0.19 children per woman for those aged 50-59 years. This reflects women with young families reducing their employment hours in order to balance a career and motherhood, then returning to full-time employment. Hence, at the main reproductive ages women in part-time employment are likely to have larger families than women who remain in full-time employment. This is consistent with the findings of Cramer (1980), that, regardless of fertility expectations, having a baby affects employment more profoundly than caring for older children.

## 10.5 Full-time/part-time work patterns

That the average number of children per woman increases with age for women in all labour force status groups is abundantly obvious. However, timing does vary. For women in full-time employment, the sharpest increase occurs at a later age than for any of the other labour force status groups. There are larger fertility differentials at the younger ages between full-time employed women and part-time employed women. On the other hand, fertility differentials between women who were not in the labour force and those who were employed part-time were reasonably constant for women aged between 30 and 59 years. Women in this age group who were not in the labour force had, on average, an extra 0.18 children per woman relative to those working part-time. This compares with a differential of 0.52 children per woman for those aged 20-24 years. More women in this age group worked part-time, commonly to support themselves while they gained an education, and the majority of these women were childfree.

At ages below 40 years, the number of children per unemployed woman is similar to that for women in part-time employment, perhaps suggesting that the ratio of those seeking part-time work to those seeking full-time work is similar to the ratio of those employed part-time and full-time. However, this increases for those aged 45 years and over to levels approximating those for women who were not in the labour force. For women aged 45-59 years, women who worked part-time had on average 0.22 children more than those who worked full-time. Similarly, women in this age group who were unemployed or not in the labour force at the time of census had, on average, 0.25 children more than those who worked part-time. If we make an assumption that fertility is essentially controlled, this implies that women are choosing full-time employment, and to a lesser extent part-time employment, over larger families. This, as with social pressures on parenting, has an overall downward force on fertility.

Table 37:

**Average Number of Children, Actual and Age-adjusted by Labour Force Status of Women Aged 15-59 Years**

Labour Force Status	Number of Women	Number of Children	Median Age of Women (Years)	Average Number of Children,,	
				Actual	Age-Adjusted†
Employed full-time	426,165	592,842	36.6	1.39	1.32
Employed part-time	235,056	423,477	36.4	1.80	1.77
Unemployed and actively seeking work	60,159	81,420	27.6	1.35	1.86
Not in labour force	289,146	556,821	33.7	1.93	2.00
Total	1,010,523	1,654,563	35.2	1.64	1.64

„ Average number of children per woman.

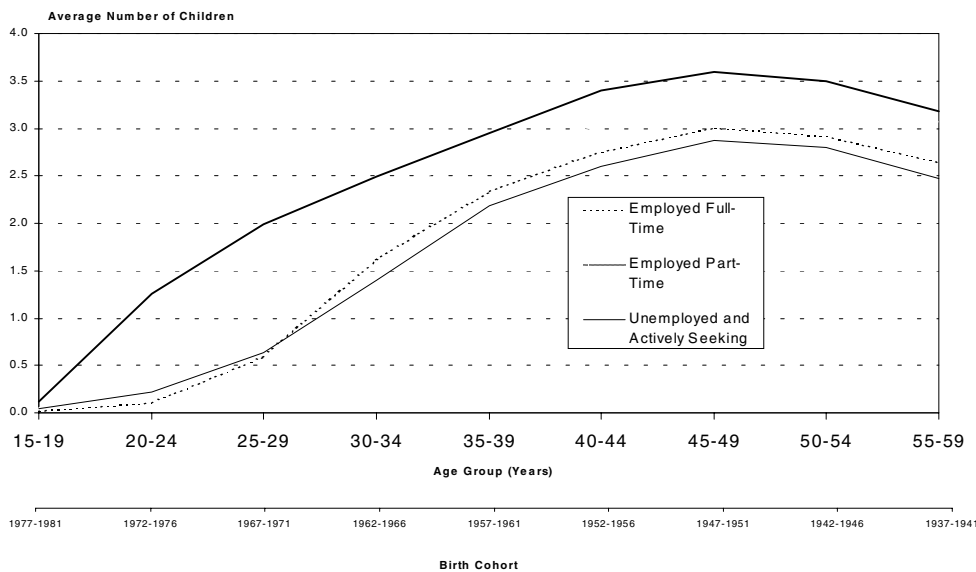
†Adjusted by the direct method using the age structure of usually resident women who specified number of children.

Source: 1996 Census of Population and Dwellings

As Andorka (1978) found for women in the United States and Ware (1976) for those in Australia, New Zealand women in paid employment had lower age-adjusted fertility than those who were not (Table 37). Women who were employed either full-time or part-time had age-adjusted fertility levels of 1.32 and 1.77 children per woman respectively. This compares with 1.86 children per unemployed woman and 2.00 children per woman for those absent from the labour force.

Figure 18:

**Average Number of Children per Woman by Age and Labour Force Status, 1981**



Source: 1981 Census of Population and Dwellings

Female employment and fertility are clearly interrelated. Cramer (1980) in his study on the problems of causal direction between fertility and female employment concludes that, in the short term, fertility has a strong effect on employment, which overshadows any impacts in the opposite direction. However, in the longer term, the effect of employment on fertility may be stronger than he suggests, at least in the New Zealand case. Demographic developments including declining fertility and delayed childbearing, along with changing social expectations, have resulted in continuing fundamental shifts in labour force participation among women. A comparison of 1981 and 1996 Census data reflects the continuing shift in attitudes towards women, and towards women in paid work over the past couple of decades (Figures 17 and 18).

## 10.6 Changing economic conditions

In addition to social changes, changing economic conditions have also contributed to large changes in labour force behaviour for both men and women<sup>15</sup>, especially for women in the 15-19 years age group. The proportion of women in this age group in full-time employment more than doubled between 1981 (17 percent) and 1996 (40 percent), and increased fourfold for part-time employment, from 8 to 31 percent. There was, in this period, a large increase in the number of women remaining at school longer or in tertiary education. The majority of these women are in part-time employment, primarily because of the massive increase in tertiary training fees and the introduction of the student loan scheme which forced many women (as well as men) to take on part-time work to support themselves while in tertiary level training.

Increases in the proportion of women in employment are also found in the older age groups, but primarily these occur in the full-time workforce, since the key employers of part-time workers, such as supermarkets, tend to prefer to use cheaper teenage labour. For those aged 25-59 years, the proportion of women in full-time employment increased from 34 percent in 1981 to 45 percent in 1996, a proportionally bigger increase than for men. This illustrates the marked gains experienced by women in paid economic activity, and is a global phenomenon. The main drivers in these gains relate to rising levels of education, attitudinal change, growing risk of divorce, improved health of women and children and improved technology for housework. The change in the female work profile has allowed many women working part-time to combine paid work and family commitments, no doubt facilitated in many cases by changes in the intra-familial division of labour and shared parenting by both partners.

## 10.7 Women out of the labour force

The age structure of women absent from the labour force remained fairly similar between 1981 and 1996, and their median age increased marginally from 33 to 34 years. Effectively this meant that this group became relatively younger, since this increase is much smaller at one year than the increase in median age of well over four years for all females over this period (from 28.9 to 33.6 years). Moreover, the proportion of women absent from the labour force decreased for women in all age groups over this period. For example, for women aged 25-29 years, 49 percent were not in the labour force in 1981, compared with 28 percent in 1996. Overall, 42 percent of women were not in the labour force in 1981, compared with 29 percent in 1996. Thus, not only were many more women moving into the labour force as time went by, but also fewer women are withdrawing from the labour force for childbearing and rearing responsibilities, or are doing so for a shorter period of time.

This can be seen by comparing 1996 patterns (Table 37) with those found in the 1981 Census (Table 38). At that time, those in full-time employment had an age-adjusted fertility level of 1.50 children per woman, compared with 2.01 children per woman for those in part-time employment. Thus, as for 1996, women employed part-time had larger families, in general, than those working full-time. However, the differential in fertility levels for these two labour force status groups is fractionally larger for 1981, at 0.51 children per woman in 1981, compared with 0.45 children per woman in 1996.

Table 38:

### Average Number of Children, Actual and Age-adjusted by Labour Force Status of Women Aged 15-59 Years (1981)

Labour Force Status	Number of Women	Number of Children	Median Age of Women (Years)	Average Number of Children,	
				Actual	Age-Adjusted†
Employed full-time	343,197	468,798	30.3	1.37	1.50
Employed part-time	153,006	369,459	27.1	2.41	2.01
Unemployed and actively seeking work	24,498	15,132	20.7	0.62	1.43
Not in labour force	378,441	848,427	32.6	2.24	2.24
Total	899,142	1,701,816	32.7	1.89	1.89

„ Average number of children per woman.

† Adjusted by the direct method using the age structure of usually resident women who specified number of children.

Source: 1981 Census of Population and Dwellings

<sup>15</sup> New Zealand experienced significant labour market restructuring between the 1981 and 1996 Censuses and was also affected along with the rest of the world by the 1987 economic crises. The changes between these dates need to be examined in the knowledge that the New Zealand of 1981 was very different to the New Zealand of 1996. This is an area which awaits a full analysis.

Between 1981 and 1996, the age-adjusted fertility level for women absent from the labour force dropped from 2.24 children per woman to 2.00, much larger than the overall drop in the age-adjusted average for all women. However, the difference in age-adjusted fertility levels between this group and those in part-time employment remained the same between 1981 and 1996. This suggests that women are increasingly balancing motherhood and additional hours in the paid workforce. Both a cause and a consequence of this is the availability of improved conditions for working mothers, in the form of better childcare services and more flexible working hours.

## 10.8 Combining family and work

These changes in labour force patterns are also highly age-dependent. The narrowing of the gap at the younger working ages at least in part results from delayed childbearing. If more women delay starting their families, then a greater share in each labour force status group will have parity zero. This in turn serves to reduce the difference in fertility levels between the respective groups. Similarly, at the older working ages there has been an increasing trend towards older women returning to paid work after completing their families. In 1996, around 69 percent of women aged 45-59 years were employed, compared to 52 percent in 1981. The increase in the proportion of women not only returning to work after child rearing, but also working through child rearing, again is associated with an overall reduction in fertility differentials between labour force status groups as well as a general decline in fertility. This reduction is related to the social expectation upon women to be in the workforce. Work also provides inherent rewards (mainly in the form of income, but also the benefits of contact outside the home), and, in many cases, personal interest and incentives.

Professional extrafamilial childcare resolves part of the incompatibility of combining work and family careers. Most women in paid work with small children must rely on somebody else to take care of their children during their work hours. In New Zealand, 60 percent of pre-school children (aged 0-4 years) attend an early childhood service or are looked after by someone other than a parent living in the household (Department of Labour and National Advisory Council on the Employment of Women, 1999). Economic models of women's employment and fertility suggest that so long as the mother uses outside childcare while raising her children, the higher price of childcare lowers fertility. On the other hand, higher childcare costs<sup>16</sup> to some extent raise the rate of leaving employment and also reduce the rate of entering employment. Thus, childcare costs will affect both fertility and employment decisions. Couples/women must make an explicit choice as to the balance between mother's time (and more recently father's time) and purchased childcare (such as early childhood education, child-minders, etc). Among the more recent cohorts, women have increasingly been able to raise their families and remain in the labour force. This may reflect improvements in childcare provision over the last couple of decades as a response to demand, as much as to economic necessity and changing attitudes to children.

The New Zealand Childcare Survey (Department of Labour and National Advisory Council on the Employment of Women 1999) observed that, overall, a mother's labour force participation is affected by the presence of children in a way that a father's participation is usually not (except in the case of sole fathers). However, as Greene and Biddlecom (2000) have observed in a recent review article, the role of men is less well understood or, indeed, until quite recently, even recognised, with respect to fertility behaviour.

## 10.9 Work and male partners of women

Of the 573,221 males whose female partners were aged 15-59 years and specified the number of children, 81 percent were employed full-time at the 1996 Census. This is about double that for women (42 percent). Conversely, only 5 percent of men were employed part-time compared with 23 percent of women. More women than men took on part-time work in order to balance family responsibilities and a career, and more females than males were absent from the labour force because they were fully occupied with unpaid work in the home, caring for children or dependent elderly relatives. Men in the same situation would be socially expected to remain in the labour force as unemployed rather than drop out of the labour force altogether.

Actual and age-adjusted average number of children per currently partnered woman by her current male partner's labour force status are given in Table 39. Men who were employed either full-time or part-time had age-adjusted fertility levels of 2.05 and 2.13 children per woman respectively. This gives a small differential of 0.08 children between male partners working part-time and those working full-time. Comparing this with the differential of 0.45 children per woman for women in the same labour force status groups gives an indication of the greater effect children have on a woman's employment decisions.

<sup>16</sup> Childcare costs and access relative to local income levels vary greatly, and this is a factor which can drive spatial fertility differentials.

Women whose male partners were unemployed or not in the labour force had age-adjusted fertility levels of 2.49 and 2.34 children per woman respectively. Therefore, men<sup>17</sup> who were unemployed in the labour force had lower fertility rates than those who were not in the labour force. The difference between age-adjusted fertility levels for those who were not in the labour force and those in full-time employment for men is 0.29 children per woman and for women is 0.68 children per woman. These results indicate that, in general, a man's position in the labour market is not determined by family responsibilities to the same extent as is a woman's.

Table 39:

**Average Number of Children, Actual and Age-adjusted, for Usually Resident Currently Partnered Women Aged 15-59 By Labour Force Status of Male Partner, Opposite-Sex-Couple Families**  
**Figure 19: Proportion of Women Who Were Childfree (Parity 0) by Age and Labour Force Status**

Labour Force Status	Number of Women	Number of Children	Median Age of Women (Years)	Average Number of Children,,	
				Actual	Age-Adjusted†
Employed full-time	462,117	935,019	38.6	2.02	2.05
Employed part-time	31,482	69,456	41.7	2.21	2.13
Unemployed and actively seeking work	20,655	45,918	34.9	2.22	2.49
Not in labour force	57,879	149,130	47.2	2.58	2.34
Not available	1,089	2,103	34.5	1.93	2.24
Total	573,222	1,201,626	39.1	2.10	2.10

„ Average number of children per woman.

† Adjusted by the direct method using the age structure of usually resident women who specified number of children.

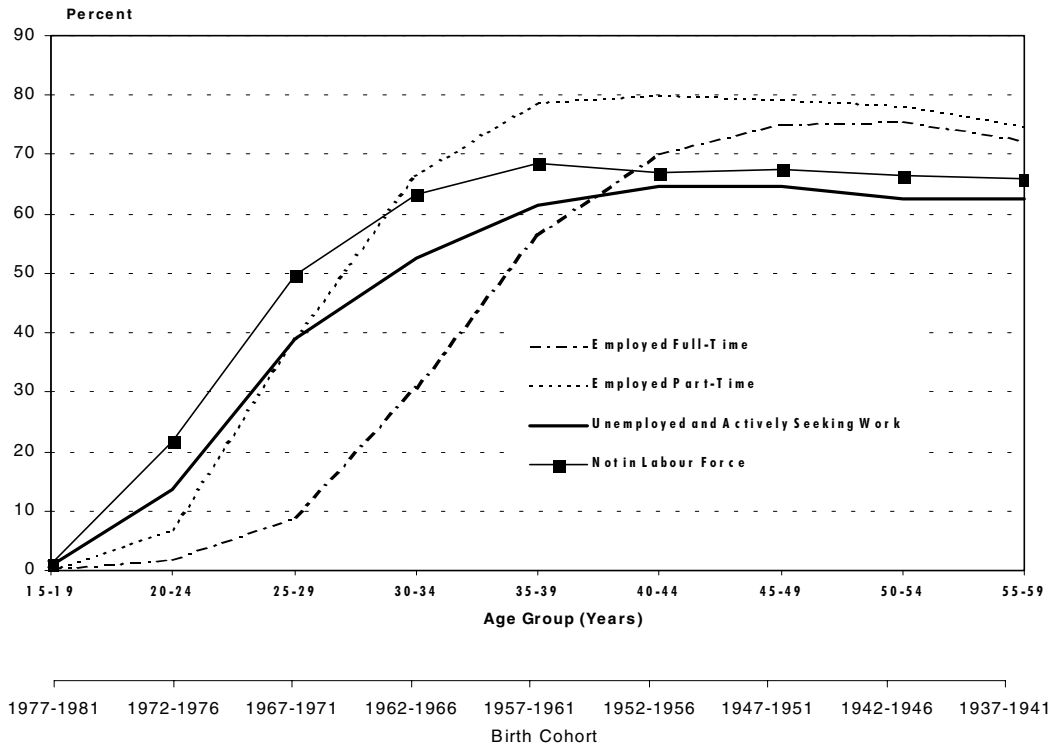
Source: 1996 Census of Population and Dwellings

The general negative relationship between labour force participation and fertility, however, is not completely monotonic. Parity data gives us some degree of insight into the somewhat complex relationship between a woman's labour force status and her childbearing behaviour. Also, parity does not necessarily equate to the number of children a woman may currently be caring for. In many cases women may be in families containing children who are not their own or they may be looking after other dependent relatives such as elderly parents. Conversely, a woman may not be looking after all of her children in cases where they have grown-up or have moved in with a previous partner on break-up of the relationship. Thus, parity has an indisputable effect on labour force activity, but it is only part of the equation.

<sup>17</sup> These are not, of course, strictly, male fertility rates since we are referring to the number of children born to the woman with whom the man happens to have been partnered with at time of the census. In many cases the man will not have been the only partner of the woman concerned, nor necessarily the father of all or any of her children. Nor will the woman necessarily be, or have been, the man's only partner. Thus, male fertility rate is a shorthand term used here purely for simplicity of expression.

Figure 20:

**Proportion of Women Who Were of Parity 2 to 4 by Age and Labour Force Status**



Source: 1996 Census of Population and Dwellings

Significantly more women aged 44 years and under, of parity zero (Figure 19), were in full-time employment than those in any of the other three labour force status groups. For the main childbearing ages (25-34 years), 68 percent of those in full-time employment were childfree. This number is at least double that for women who were unemployed (29 percent), working part-time (19 percent) or not in the labour force (14 percent). The difference is partly due to women who have either reduced their hours in the labour force, or left the labour force altogether, after the birth of their first child. Studies indicate that the causal direction of this is that women who choose to follow career paths, choose not to have children.

The same is true for women under 25 years of age. Of those women in part-time employment and aged between 15 and 24 years, 92 percent were childfree, the majority of whom are continuing their education. The 1996 Census found that two out of every three women in this age group were studying formally either full-time or part-time, and of these, 95 percent were childfree. This proportion contrasts with 75 percent for women who were employed part-time but not studying.

By 45 years of age, childfree women were about equally likely to be employed full-time as unemployed or not in the labour force. In other words, these women are either in, or seeking to be in, the full-time workforce or they are choosing not to be in the labour force. The part-time workforce is clearly not their preferred choice. Moreover, well over half of the non-labour-force women in the 45-49 years age group were in receipt of invalid benefits, and a further one in five were recipients of sickness benefits, indicating that many of those not returning to the workforce were unable to do so.

**10.10 Return to the labour force**

Mothers show a tendency at older ages to return to the labour force, whether for economic necessity or to restart careers. A young woman with children is less likely than an older woman to have a strong support network which would enable her to enter or remain in the labour force, to sustain the costs of long-term childcare, have a higher education, or indeed to have a partner. At the 1996 Census, only 44 percent of women aged 15-24 years with at least one child had a partner, compared with 80 percent of those aged 35-59 years. It is also clear that the desire for employment continues. Of the partnered women in the 45-49 year age group who have had children, more than one-third of those not currently in the labour force had been in receipt of an unemployment benefit within the previous twelve months. Many more would have actively

sought work, but would not have been eligible for an unemployment benefit, and therefore are not reflected in the data.

The proportion of women aged 15-24 years with between two and four children (Figure 20) decreases with increasing labour force participation. At the younger working ages, at a time when childcare requirements are at their peak, women with between two and four children were most likely to be absent from the labour force. However, by age 40 years the two employment groups (full-time and part-time) emerge as the labour force status groups containing the greatest percentage of women of parity 2-4. Women with adult or teenage families are more inclined to be in the older working ages, and also experience the greatest economic cost of children. This suggests that not only the number of children in the family but also, and perhaps more importantly, the children's ages have an effect on a woman's labour force status.

There is a gradual, rather than sudden return to work. Women aged 30-34 years and with between two and four children are much more likely to be in part-time rather than full-time employment (66 percent and 31 percent respectively). The difference between part-time and full-time employed converges with age (77 percent of full-time employed women aged 50-59 years were of parity 2-4, compared with 74 percent of those employed part-time). This reflects the fact that it becomes possible for women to take on more hours in the paid labour force as their children grow up and require less intensive care.

Thus there is a relationship, albeit not a simple one, between operational<sup>18</sup> family size and labour force status at the time of survey. Children or parents living away from home and other dependent relatives in the same or a different household may exert a variety of pressures on employment decision-making. Moreover, the inter-relationship between labour market conditions, sex differentials in employment, unemployment and the non-labour-force population is extremely complex. How this relates to fertility patterns among women is to a large extent unclear. Certainly, the labour market conditions are much more volatile than fertility trends, notwithstanding the fact that fertility transitions in New Zealand have occurred over a much shorter period than other countries have experienced. A new and fundamentally important finding from studies on the more advanced Swedish situation is that, when conflicts between sex roles have not been fully resolved, the relationship between labour force status and fertility is negative, but once conflicts between these roles are resolved the relationship is positive (United Nations, 2000, 16; Hoem and Hoem, 2000, 318ff). It is, perhaps, far too early for this to be seen in the New Zealand case.

## 10.11 Unpaid work

One of the important components of society is the contribution people make both within the home and outside it without being paid. Here we are concerned with the relationship between the unpaid work done by women and the number of children they have given birth to. This is of considerable interest because one of the consequences of having children is the network of interactions between the family and the rest of the population. It is therefore important to acknowledge this as part of the picture of work and fertility, but it must also be noted that the data does not support an extensive analysis.

Table 40:

### Relationship between Specified Unpaid Work and Specified Number of Children

Type of Unpaid Work	Specified Number of Children	Objected to Specifying Number of Children	Did Not Specify Number of Children	Total
Specified unpaid work in same household	1,246,377	68,262	19,833	1,334,472
No specified unpaid work in same household	37,446	3,678	60,663	101,784
Total	1,283,823	71,940	80,496	1,436,256
Specified unpaid work in different household	1,217,049	66,978	18,945	1,302,972
No specified unpaid work in different household	66,774	4,962	61,551	133,287
Total	1,283,823	71,940	80,496	1,436,256

All cells in this table have been randomly rounded to base 3.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

<sup>18</sup> Operational family size – the actual number of people operating as a family – may differ markedly from a 'census' family. The census only codes children and parents (or adults acting in parental roles) within a single household into families, but families frequently include other people in the same or different households, or differ structurally in other ways, and these family structures are not identifiable from the census.

The 1996 Census carried two different enquiries about unpaid work. In one case respondents were asked to state what type of unpaid work they had undertaken in their home in the previous seven days for themselves or for people living in the same household. The following question asked about work carried out without pay for people outside the household and identified a range of tasks such as care-giving, community group services and the like. For this second question, the number of hours spent in the previous four weeks was also collected. There is some doubt about how well these questions performed, especially with regard to the hours stated, since these may be at best approximate and may well not refer to the four-week period, but some other period. Table 40 summarises the relationship between the responses to these questions and the responses to the question on the number of children.

Table 41:

### Age-adjusted Average Number of Children and Unpaid Work for Selected Ethnicities

Type of Unpaid Work	Ethnicity <sup>..</sup>			
	European	Asian	Māori	Pacific
Did unpaid work for yourself or people living in the same household in last 7 days	1.96	1.84	2.74	2.80
Did not do unpaid work for yourself or people living in the same household in last 7 days	1.76	1.64	2.82	2.75
Not specified	1.93	1.97	2.91	2.93
Total	1.95	1.82	2.76	2.80
Did unpaid work for yourself or people NOT living in the same household in last 4 weeks	2.08	1.90	2.79	2.83
Did not do unpaid work for yourself or people NOT living in the same household in last 4 weeks	1.79	1.76	2.70	2.74
Not specified	1.94	1.95	2.92	2.94
Total	1.95	1.82	2.76	2.80

<sup>..</sup>People may have more than one ethnicity and may be counted in more than one category.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Table 42:

### Percentage Distribution of Unpaid Work for Selected Ethnicities

Type of Unpaid Work	Ethnicity <sup>..</sup>			
	European	Asian	Māori	Pacific
Did unpaid work for yourself or people living in the same household in last 7 days	88.10	81.01	84.33	79.33
Did not do unpaid work for yourself or people living in the same household in last 7 days	9.32	16.05	11.66	15.36
Not specified	2.58	2.94	4.00	5.31
Total	100.00	100.00	100.00	100.00
Did unpaid work for yourself or people NOT living in the same household in last 4 weeks	48.21	29.20	53.92	45.81
Did not do unpaid work for yourself or people NOT living in the same household in last 4 weeks	46.89	65.58	40.34	46.79
Not specified	4.90	5.22	5.74	7.40
Total	100.00	100.00	100.00	100.00

<sup>..</sup>People may have more than one ethnicity and may be counted in more than one category.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Among the 1,283,823 women who specified the number of children born to them, there are some quite clear patterns. As expected, in general, the more children a woman has had, the more likely she is to be involved in unpaid work outside the home, as Table 41 shows.

The same holds for unpaid work in the same household except for women of Māori ethnicity, but not too much should be read into this since it is extremely unlikely that this question performed in the same way for all people, as can be deduced from Table 42. Since the question on work in the same household included tasks such as housework, it is extremely unlikely that the proportion of women (many with families) who stated that they did no unpaid work in their home is correct.

Table 43:

### Percentage Distribution of Unpaid Work Outside the Household by Urban Area Type

Type of Unpaid Work,,	Type of Area of Usual Residence				
	Main Urban	Secondary Urban	Minor Urban	Rural and Other	Total
Cared for children not living in same household	20.46	22.35	22.27	23.98	21.21
Did household work, cooking, repairs, gardening, or cared for elderly, etc	14.30	14.60	15.16	16.72	14.71
Did unpaid training, coaching, teaching etc	13.43	13.57	13.70	18.31	14.09
Attended committee meeting etc unpaid for group, church or marae	17.93	22.22	22.78	27.14	19.86
Did fundraising, selling etc unpaid for group, church or marae	8.09	10.49	11.55	13.80	9.30
Did other unpaid work	5.10	5.80	6.19	6.35	5.41

„People may do more than one type of unpaid work and will appear in each relevant category.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Table 44:

### Age-adjusted Average Number of Children and Unpaid Work by Urban Area Type

Type of Unpaid Work,,	Type of Area of usual Residence				
	Main Urban	Secondary Urban	Minor Urban	Rural and Other	Total
Cared for children not living in same household	2.26	2.49	2.61	2.60	2.36
Did not care for children not living in same household	1.83	2.11	2.23	2.23	1.94
Did household work, cooking, repairs, gardening, or cared for elderly, ill or disabled person	1.97	2.24	2.34	2.34	2.08
Did not do household work, cooking, repairs, gardening, or cared for elderly, ill or disabled person	1.92	2.20	2.32	2.32	2.02
Did unpaid training, coaching, teaching etc	2.07	2.36	2.47	2.50	2.20
Did not do unpaid training, coaching, teaching etc	1.89	2.17	2.29	2.27	1.99
Attended committee meeting etc unpaid for group church or marae	2.09	2.35	2.45	2.52	2.22
Did not attended committee meeting etc unpaid for group, church or marae	1.89	2.16	2.28	2.24	1.98
Did fundraising, selling etc unpaid for group, church or marae	2.28	2.50	2.60	2.66	2.40
Did not do fundraising, selling etc unpaid for group, church or marae	1.89	2.17	2.28	2.26	1.99
Did other unpaid work	2.03	2.29	2.46	2.46	2.16
Did not do other unpaid work	1.92	2.20	2.31	2.31	2.03
Total	1.93	2.21	2.32	2.32	2.03

„People may do more than one type of unpaid work and will appear in each relevant category.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Similarly, increasing rurality is associated with a growing involvement with unpaid work. Women in rural areas are much more likely than women in urban areas to be involved in fundraising and community meetings, coaching and other activities. They are also slightly more likely to be caring for other children or providing unpaid gardening or domestic services to other members of the community (Table 43).

In Table 44, the age-adjusted average number of children per woman is shown. Again, the general trend is clear – the more children a woman has had on average, the more likely she is to be involved in unpaid work outside the home.

However, while minor urban and rural women have more children on average, from Table 43 we can see that rates of participation in unpaid work for women in minor urban areas are like those of secondary urban rather than rural women. Women living in minor urban areas have similar numbers of children overall, but much lower unpaid work participation rates. We can conclude then that while the presence of (or previous association with) children is more associated with higher levels of involvement in unpaid work than is the absence of children, the social dynamics of rural society play a stronger part.

## Chapter 11

### Income and Occupation

In this chapter we consider the relationship between personal income and fertility. Our sample is the 1,215,012 women who specified both the number of children and their personal income and the 664,545 employed women who specified both occupation and number of children (Table 45).

Table 45

#### Relationship between Specified Occupation, Specified Personal Income and Specified Number of Children

Occupation and Income	Number of Children Stated	Number of Children Not Stated	Total
Employed, occupation specified			
Income specified	645,063	36,489	681,555
Income not specified	19,482	2,970	22,452
Total	664,545	39,462	704,007
Employed, occupation not specified			
Income specified	19,542	2,688	22,233
Income not specified	3,912	50,868	54,774
Total	23,454	53,553	77,007
Not employed			
Income specified	550,401	43,959	594,363
Income not specified	45,420	15,456	60,879
Total	595,824	59,418	655,242
Total			
Income specified	1,215,012	83,142	1,298,148
Income not specified	68,814	69,294	138,105
Total	1,283,823	152,436	1,436,256

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

The interrelationship between fertility and income is fraught with methodological and theoretical difficulties. A key dilemma is whether to base the analysis on a woman's income alone, on her current partner's income alone, on their joint income, or on the household income or the family income. A further concern is whether income alone is an adequate measure of socio-economic status. There are no definitive answers to these problems. Moreover, income is not the same as earnings – many income sources rely on assets or circumstances other than on the direct sale of labour.

A further limitation of the measurement of family income is that it does not capture the true financial contribution towards a child or children. In no case do we know how this income is distributed among the members of the family or indeed other members of the household. We also don't know how this income is distributed among other commitments or people with a call on the income. This further complicates those cases when a parent does not live with the child but still provides financial support or when other people in the household also contribute. Equally invisible in the data are any contributions, in cash or kind, which may flow into the family from supporting parents, relatives and friends outside. Moreover, in so far as income and fertility are related, income is a consequence of past fertility choices, perhaps rather more than a constraint or facilitator of further childbearing in the future.

In the past, the father's wage was generally sufficient to allow mothers to stay out of the labour force, and relatively few people had income from other sources. However, a male's position in the labour market has deteriorated substantially (Rindfuss et al 1996), making it increasingly difficult for the male to be the sole provider in a two-parent family. Moreover, the relationship between family and labour force participation patterns, and remuneration derived from the latter, is no longer as simple due to increases in divorce, remarriage, cohabitation, and wider acceptability of same-sex partnerships.

For sole-parent families, eligibility for various forms of income assistance also has changed over time, opening up improved opportunities for other forms of family formation. This has resulted in a greater diversity in relationships and more complex family structure. In many cases, absence of the father's (or mother's) income forces the woman (or man) to be the sole provider for the family<sup>19</sup>, or a partner's income may need to be distributed across more than one family. Sometimes the current partner's income alone is inadequate for a family to attain their desired standard of living, or, in many cases, even to maintain the standard to which the family is accustomed. In such a case, the woman often enters the workforce to boost or maintain family income levels. There is also an increasing number of two-parent households where the female is the principal provider.

Table 46

### Average Number of Children per Woman (Actual and Age-adjusted) by Personal Income

Personal Annual Income	Women Specifying Number of Children	Average Number of Children	Age-Adjusted Average Number of Children
\$10,000 or Less	477,786	1.91	2.15
\$10,001 - \$15,000	241,917	2.37	2.10
\$15,001 - \$20,000	129,861	1.99	1.92
\$20,001 - \$25,000	100,734	1.68	1.73
\$25,001 - \$30,000	92,430	1.52	1.58
\$30,001 - \$40,000	100,926	1.47	1.46
\$40,001 - \$50,000	37,803	1.49	1.38
\$50,001 - \$70,000	20,058	1.52	1.40
\$70,001 - \$100,000	7,596	1.68	1.48
\$100,001 or more	5,895	2.13	1.83
Not specified	68,814	2.13	2.32
Total	1,283,823	1.92	1.92

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

We are completely unable to consider how income affects fertility decisions, because personal income data from a census relates to the current situation of the woman. A woman's or her current partner's income at the time of the census need not reflect her/his income at the time that fertility decisions were being made, nor does it necessarily refer to the same partnership.

Clearly, there is a relationship (Table 46) between the number of children a woman has had and her personal income outcomes, except for the small number of women with incomes in excess of \$100,000 per annum. Women who have had larger numbers of children tend to have, on average, lower incomes. It is also clear that nearly 40 percent of the women who specified their income were in receipt of less than \$10,000 per annum. This tends to support the relationship between childcare burden and employment options.

<sup>19</sup> An intriguing element in the relationship between sole parenting and sole support is the degree to which there is a direct relationship between "the rising costs of children" and "the probability of paternal [or maternal] default" (Greene and Biddlecom, 2000, 103). It should also not be overlooked that economic support is but one, and perhaps relatively minor, component of the support requirements of a child.

Table 47

### Age-adjusted Average Number of Children and Personal Income for Selected Ethnicities

Personal Annual Income	Women Specifying Number of Children	Ethnicity <sup>„</sup>			
		European	Māori	Pacific	Asian
	Number†	Percent			
\$10,000 or Less	477,786	82.0	12.5	4.8	6.9
\$10,001 - \$15,000	241,917	87.2	12.1	3.2	2.5
\$15,001 - \$20,000	129,861	86.1	11.5	4.4	3.6
\$20,001 - \$25,000	100,734	86.7	10.6	4.7	3.7
\$25,001 - \$30,000	92,430	88.6	9.6	4.0	3.6
\$30,001 - \$40,000	100,926	91.9	7.4	2.4	3.1
\$40,001 - \$50,000	37,803	92.8	6.1	1.4	3.5
\$50,001 - \$70,000	20,058	93.6	4.5	0.9	4.0
\$70,001 - \$100,000	7,596	94.0	4.2	0.9	4.1
\$100,001 or more	5,895	93.3	4.7	1.3	3.5
Not specified	68,814	66.3	22.8	11.6	6.0
Total	1,283,823	84.8	11.7	4.4	4.7
Age adjusted average number of children born					
\$10,000 or Less	2.15	2.09	2.95	3.03	1.96
\$10,001 - \$15,000	2.10	2.00	2.98	2.93	1.94
\$15,001 - \$20,000	1.92	1.84	2.72	2.74	1.81
\$20,001 - \$25,000	1.73	1.67	2.42	2.52	1.72
\$25,001 - \$30,000	1.58	1.54	2.18	2.32	1.58
\$30,001 - \$40,000	1.46	1.43	2.08	2.05	1.48
\$40,001 - \$50,000	1.38	1.37	1.92	2.31	1.51
\$50,001 - \$70,000	1.40	1.40	2.22	1.62	1.37
\$70,001 - \$100,000	1.48	1.48	1.86	1.81	1.55
\$100,001 or more	1.83	1.81	2.46	2.85	1.72
Not specified	2.32	2.09	3.20	3.11	2.15
Total	1.92	1.83	2.79	2.84	1.88

„People may have more than one ethnicity and may be counted in more than one category.

†Number of women who specified both number of children and ethnicity (average number of children in this column is the average all women who specified number of children).

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

However, when these data are examined in relation to ethnicity and age-adjusted average number of children per woman (Table 47), we find that in the lower incomes European women are relatively under-represented and in the higher incomes both European and Asian women are over-represented. To some extent this exaggerates the differentials, but for each ethnicity there is evidence that the more children a woman has given birth to, the lower her current income is likely to be.

While measures like family income also display this differentiation it is not as extreme as that for personal income. For this reason a measure like family income may be more reliable for assessing fertility trends than personal income of the female partner. However, it must be remembered that the measurement of family income at the time of the census does not necessarily reflect income at the time a woman was bearing children. Even allowing for the quality problems inherent in this type of data, there is not a clear trend in the relationship between family data and the number of children a woman will have given birth to (Table 48). When we consider the patterns across family type, this holds for both one and two-parent families. The couple-only families have a lower average number of children, of course, since they will include a larger proportion of childfree women than women whose children have all left home.

Table 48

### Age-adjusted Average Number of Children and Family Income for Selected Ethnicities

Family Income	Women Specifying Number of Children	Ethnicity <sup>..</sup>			
		European	Māori	Pacific	Asian
Age adjusted average number of children born					
Couple only					
\$10,000 or Less	1.49	1.39	2.15	2.33	1.39
\$10,001 - \$15,000	1.45	1.39	2.04	2.17	1.19
\$15,001 - \$20,000	1.49	1.45	2.14	2.03	1.43
\$20,001 - \$25,000	1.44	1.42	1.96	1.82	1.23
\$25,001 - \$30,000	1.41	1.38	1.99	1.78	1.23
\$30,001 - \$40,000	1.37	1.35	1.82	1.67	1.23
\$40,001 - \$50,000	1.33	1.31	1.78	1.80	1.14
\$50,001 - \$70,000	1.28	1.27	1.67	1.41	1.21
\$70,001 - \$100,000	1.20	1.19	1.59	0.86	1.01
\$100,001 or more	1.20	1.20	1.33	1.81	1.01
Not specified	1.43	1.35	2.15	1.94	1.44
Total	1.33	1.30	1.89	1.83	1.29
Two-parent family					
\$10,000 or Less	2.65	2.36	3.61	3.55	2.02
\$10,001 - \$15,000	2.73	2.61	2.87	3.74	2.38
\$15,001 - \$20,000	2.77	2.60	3.68	3.54	2.47
\$20,001 - \$25,000	2.70	2.57	3.37	3.21	2.17
\$25,001 - \$30,000	2.67	2.53	3.59	3.53	2.39
\$30,001 - \$40,000	2.51	2.43	3.38	3.25	2.39
\$40,001 - \$50,000	2.39	2.32	3.14	3.13	2.20
\$50,001 - \$70,000	2.26	2.20	2.99	3.02	2.34
\$70,001 - \$100,000	2.09	2.05	2.50	2.79	2.26
\$100,001 or more	2.16	2.13	2.87	2.77	2.32
Not specified	2.60	2.37	3.55	3.42	2.28
Total	2.41	2.30	3.31	3.29	2.30
One-parent family					
\$10,000 or Less	2.86	2.56	3.55	3.19	2.20
\$10,001 - \$15,000	2.75	2.52	3.48	3.30	2.26
\$15,001 - \$20,000	2.56	2.37	3.42	3.20	2.30
\$20,001 - \$25,000	2.43	2.27	3.40	3.03	2.19
\$25,001 - \$30,000	2.17	2.02	3.04	3.04	2.15
\$30,001 - \$40,000	2.01	1.90	2.87	2.71	2.04
\$40,001 - \$50,000	1.78	1.69	2.52	2.49	2.07
\$50,001 - \$70,000	1.68	1.60	2.55	2.77	1.86
\$70,001 - \$100,000	1.71	1.66	2.37	2.31	1.68
\$100,001 or more	1.79	1.78	2.52	1.83	1.85
Not specified	2.79	2.45	3.64	3.24	2.40
Total	2.46	2.25	3.42	3.16	2.24

..People may have more than one ethnicity and may be counted in more than one category.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

On the other hand, the census measurement of family income does not take account of the number of people reliant upon that income or the way in which each member is reliant on that income. Family size is one important factor when looking at family income, because it does give us some idea of the demand placed on that income. However, we have no conclusive information on the actual number of people dependent on that income, nor the way in which the income is operationally distributed inside or outside the family. A key factor here is that many of the distributive processes and intra- and inter-familial support functions are highly dependent on relationships within the group.

Table 49

### Age-adjusted Average Number of Children for Selected Broad Occupation Groups for Selected Ethnicities

Selected Occupation Group	Ethnicity,,			
	European	Māori	Pacific	Asian
	Number of women with specified number of children			
Legislators, administrators and managers	58,389	4,488	969	3,024
Professionals	91,626	7,404	1,924	3,462
Technicians and associate professionals	68,082	6,249	1,782	2,214
Clerks	152,457	14,904	5,906	5,118
Service and sales workers	119,322	16,404	5,650	5,811
Agriculture and fishery workers	42,723	4,419	510	801
Trades workers	7,437	972	564	387
Plant and machine operators and assemblers	18,888	4,521	2,916	2,172
Elementary occupations	29,484	7,620	3,759	1,506
Not employed	483,012	78,663	29,634	34,788
	Age adjusted average number of children born			
Legislators, administrators and managers	1.63	2.15	1.95	1.66
Professionals	1.60	2.38	2.44	1.20
Technicians and associate professionals	1.57	2.13	1.57	1.65
Clerks	1.71	2.24	2.21	1.50
Service and sales workers	1.92	2.57	2.30	1.79
Agriculture and fishery workers	2.16	2.52	2.48	2.36
Trades workers	1.69	1.75	1.62	1.19
Plant and machine operators and assemblers	1.89	2.30	2.02	1.88
Elementary occupations	2.11	2.83	2.55	1.82
Not employed	2.08	3.08	3.15	1.97

„People may have more than one ethnicity and may be counted in more than one category.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

Related to income is the way in which this income is derived, especially among employed women. Table 49 shows the age-adjusted average number of children born to women by broad occupation group and ethnicity, to see if the occupations in which mothers find themselves reflect in any way the number of children they have given birth to. This relates only to the main occupation at the time of census and bears no necessary relation to the occupations they were in at the time of the birth of any of their children. It is clear that while some categories, such as agricultural and fishery workers and women in elementary occupations, tend to have more children than those in other categories, this is almost entirely explained by the distribution of ethnicities and women of multiple ethnicity within different occupations.

Table 50

### Age-adjusted Average Number of Children for Selected Broad Occupation Groups by Highest Educational Qualification

Selected Occupation Group	Highest Qualification			
	Tertiary	Secondary	None	Total,
	Number of women with specified number of children			
Legislators, administrators and managers	58,389	4,488	969	3,024
Professionals	91,626	7,404	1,924	3,462
Technicians and associate professionals	68,082	6,249	1,782	2,214
Clerks	152,457	14,904	5,906	5,118
Service and sales workers	119,322	16,404	5,650	5,811
Agriculture and fishery workers	42,723	4,419	510	801
Trades workers	7,437	972	564	387
Plant and machine operators and assemblers	18,888	4,521	2,916	2,172
Elementary occupations	29,484	7,620	3,759	1,506
Not employed	483,012	78,663	29,634	34,788
	Age adjusted average number of children born			
Legislators, administrators and managers	1.63	2.15	1.95	1.66
Professionals	1.60	2.38	2.44	1.20
Technicians and associate professionals	1.57	2.13	1.57	1.65
Clerks	1.71	2.24	2.21	1.50
Service and sales workers	1.92	2.57	2.30	1.79
Agriculture and fishery workers	2.16	2.52	2.48	2.36
Trades workers	1.69	1.75	1.62	1.19
Plant and machine operators and assemblers	1.89	2.30	2.02	1.88
Elementary occupations	2.11	2.83	2.55	1.82
Not employed	2.08	3.08	3.15	1.97

„ Includes not specified.

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

The view that there is a minimal effect of occupation on fertility is further supported by the distribution of women by their highest educational qualification (Table 50). As shown in Chapter 7, educational achievement is a very strong determinant of the number of children a woman will choose to have. When we compare the distribution of women across occupation groups by qualification, we see that, as with ethnicity, it is the qualification which relates to their fertility and not their choice of occupation.

It is also known that occupations tend to have a spatial pattern in their distribution. A comparison of the age-adjusted average number of children per woman by urban and rural area of usual residence and occupation further confirms the lack of relationship between occupation choice and fertility. The differences seen in Table 51 are all explained by the ethnic, educational and geographic factors, which are reflected in the spatial distribution of occupations. A full discussion of these issues is left for the forthcoming studies of ethnic and spatial aspects of fertility.

Table 51

**Age-adjusted Average Number of Children by Urban Area of Usual Residence**

Selected Occupation Group	Type of Area of Usual Residence			
	Main Urban	Secondary Urban	Minor Urban	Rural and Other
Legislators, administrators and managers				
North Island	1.61	1.96	2.05	1.98
South Island	1.69	1.93	1.87	1.92
Professionals				
North Island	1.59	1.90	2.00	2.06
South Island	1.59	1.87	1.79	1.95
Technicians and associate professionals				
North Island	1.54	1.87	1.94	1.92
South Island	1.58	1.81	1.78	1.90
Clerks				
North Island	1.68	1.95	2.02	2.07
South Island	1.65	1.89	1.89	2.00
Service and sales workers				
North Island	1.89	2.18	2.26	2.21
South Island	1.86	2.03	1.98	2.11
Agriculture and fishery workers				
North Island	2.11	2.30	2.34	2.43
South Island	1.88	2.08	2.09	2.34
Trades workers				
North Island	1.75	1.94	1.91	1.87
South Island	1.71	1.98	1.91	1.88
Plant and machine operators and assemblers				
North Island	2.01	2.27	2.33	2.27
South Island	1.80	2.00	2.01	2.15
Elementary occupations				
North Island	2.26	2.47	2.52	2.51
South Island	2.08	2.29	2.26	2.26
Not employed				
North Island	2.11	2.43	2.63	2.60
South Island	1.93	2.24	2.13	2.41

Subject population: Women aged 15 years and over resident in New Zealand.

Source: 1996 Census of Population and Dwellings

A similar analysis of the relationship between fertility and industry reveals almost identical features as have been shown for occupation. Were data available for occupations and industries in which women worked at the time of their decisions to have children, we would be able to address the questions of whether or not specific occupations or industries affected fertility outcomes. However, this is not possible from synchronic census data.

## Chapter 12

### Housing

The type of accommodation occupied by families is a prime indicator of social well-being, however, the link between fertility and the type of dwelling occupied at census time is less clear. In this chapter we look briefly at some aspects of the dwellings in which women were usually resident in 1996. This will give us information on the accommodation choices or consequences relative to the number of children a woman has given birth to. Of course, this relates to the dwellings in which they lived at the time of the census, rather than necessarily the dwellings in which they may have raised any children, and this chapter sets out to do no more than introduce this dimension. It is not intended as an in-depth analysis.

Table 52

#### Relationship between Specified Dwelling Type of Usual Residence and Specified Number of Children

Dwelling Type	Number of Children Stated	Number of Children Not Stated	Total
Specified private dwelling	1,210,944	135,411	1,346,355
Specified non-private dwelling	26,529	6,321	32,850
In transit/no fixed abode	1,329	2,805	4,137
Total	1,238,802	144,540	1,383,345

Subject population: Women aged 15 years and over resident in New Zealand at home on census night.

Source: 1996 Census of Population and Dwellings

Table 53

#### Age-adjusted Average Number of Children by Dwelling Type of Usual Residence

Dwelling Type	Total Specified Women	Ethnicity <sup>a</sup>			
		European	Māori	Pacific	Asian
Separate house (including emergency house, women's refuge, DSW house, embassy)	29.4	27.6	28.4	33.8	38.8
Two flats or houses joined together	37.6	35.9	34.5	32.0	45.6
Three or more flats or houses joined together, in 1 or 2 storey building	44.4	43.0	40.3	35.2	46.4
Three or more flats or houses joined together, in 3 or more storey building	53.2	52.3	43.3	40.2	56.8
Flat or house joined to a business or shop	44.4	44.5	43.1	54.7	32.0
Bach, crib or other holiday home	30.0	28.5	22.3	23.1	25.0
Caravan, cabin or tent in a motor camp	32.0	29.4	27.7	36.7	47.4
Mobile or temporary dwelling (not in a motor camp)	34.6	33.1	28.5	21.9	36.8
Total private dwellings	31.1	29.2	29.5	33.8	40.2
Total	31.4	29.5	29.8	34.2	41.1

<sup>a</sup>People may have more than one ethnicity and may be counted in more than one category.

Subject population: Women aged 15 years and over resident in New Zealand at home on census night.

Source: 1996 Census of Population and Dwellings

We restrict this discussion to the 1,238,802 women who stated the number of children and who were at home on census night (Table 52). This is done because the dwelling types in which women away from home on that night happened to be enumerated may or may not be different from the types of dwelling in which they usually lived. Since records of the people away from home are not repatriated to their usual dwelling during processing, we are unable to know what type of dwelling they usually live in.

Table 54

**Percentage of Women Who Are Childfree by Dwelling Type of Usual Residence**

Dwelling Type	Total Specified Women	Ethnicity,			
		European	Māori	Pacific	Asian
Separate house (including emergency house, women's refuge, DSW house, embassy)	1.99	1.90	2.86	2.91	1.94
Two flats or houses joined together	1.62	1.49	2.39	2.69	1.71
Three or more flats or houses joined together, in 1 or 2 storey building	1.52	1.34	2.37	2.50	1.71
Three or more flats or houses joined together, in 3 or more storey building	1.27	1.11	2.06	2.11	1.26
Flat or house joined to a business or shop	1.88	1.77	2.63	2.27	2.14
Bach, crib or other holiday home	1.78	1.71	2.96	1.01	0.76
Caravan, cabin or tent in a motor camp	2.08	1.94	2.78	0.90	1.01
Mobile or temporary dwelling (not in a motor camp)	2.02	1.91	3.05	2.58	0.78
Total private dwellings	1.93	1.85	2.80	2.86	1.90
Total	1.92	1.84	2.78	2.84	1.89

„People may have more than one ethnicity and may be counted in more than one category.

Subject population: Women aged 15 years and over resident in New Zealand at home on census night.

Source: 1996 Census of Population and Dwellings

We find that some clear and expected patterns stand out. For example, among the non-private dwellings, young Asian women tend to live in educational facilities, whereas among European women elderly-care facilities dominate. Similarly among private dwellings, younger women tend to live in flats, while older women tend to live in separate houses. This is reflected in Table 53, which shows the age-adjusted average number of children to women resident in different dwelling types. Those in flats – generally young women – have fewer children. There is a clear trend for multi-unit dwellings to contain women with, on average, significantly fewer and fewer children as the number of component units in the dwelling increases. To take Pacific women as an example, for separate houses the age-adjusted average number of children per woman is 2.91. For dwellings consisting of two flats or two semi-detached houses, this average drops to 2.69 children per woman. It further drops to 2.50 for multiple flats in a single and two-storey building. For those in the larger complexes of three or more storeys, it drops to 2.11 children. This is consistent for people of all ethnicities, and is primarily related to age, employment and educational activities, as can clearly be seen from the proportion of women who are childfree in each dwelling type (Table 54).

When we change our focus slightly and look at the age-adjusted average number of children born to women who have had at least one child, we find (Table 55) an interesting element. European mothers who have had the greater number of children on average tend to live in separate houses, or in accommodation attached to a business, rather than flats or attached houses. For Māori, Pacific and Asian women, however, there is little difference between the various types of flats and attached houses, though women in detached houses still have a slightly higher number of children on average. This reflects generally lower housing standards available to these groups, either through lower socio-economic status or their status as recently arrived immigrants. The degree to which poverty is a factor in fertility levels is clearly seen in the highest averages being found among women usually resident in motor camps, caravans and similar dwellings. Women in these dwellings also have, typically, some of the lowest per capita and family incomes in New Zealand.

Table 55

**Age-adjusted Average Number of Children by Dwelling Type of Usual Residence**

Dwelling Type	Total Mothers	Ethnicity <sup>a</sup>			
		European	Māori	Pacific	Asian
Separate house (including emergency house, women's refuge, DSW house, embassy)	2.81	2.46	3.40	3.48	2.47
Two flats or houses joined together	2.75	2.24	3.04	3.35	2.31
Three or more flats or houses joined together, in 1 or 2 storey building	2.73	2.20	3.11	3.29	2.32
Three or more flats or houses joined together, in 3 or more storey building	2.56	2.11	2.98	3.14	
Flat or house joined to a business or shop	2.62	2.41	3.22	2.85	2.51
Bach, crib or other holiday home	3.03	2.43			
Caravan, cabin or tent in a motor camp	3.09	2.62	4.34		
Mobile or temporary dwelling (not in a motor camp)	2.77	2.55	3.77		
Total private dwellings	2.80	2.43	3.36	3.46	2.44
Total	2.80	2.43	3.36	3.45	2.44

<sup>a</sup>People may have more than one ethnicity and may be counted in more than one category.

Subject population: Women aged 15 years and over resident in New Zealand at home on census night.

Source: 1996 Census of Population and Dwellings

Table 56

**Age-adjusted Average Number of Children by Selected Occupancy Categories by Selected Dwelling Types of Usual Residence**

Dwelling Type	Occupancy Status				Total
	Owned with Mortgage	Owned without Mortgage	Rented or Leased from Private Person	Rented or Leased from Housing New Zealand	
Separate house (including emergency house, women's refuge, DSW house, embassy)	2.09	1.78	2.16	2.96	1.99
Two flats or houses joined together	1.57	1.29	1.62	2.35	1.61
Three or more flats or houses joined together, in 1 or 2 storey building	1.38	1.10	1.53	2.50	1.52
Three or more flats or houses joined together, in 3 or more storey building	1.21	1.06	1.23	1.71	1.27
Flat or house joined to a business or shop	1.99	1.78	1.83	1.45	1.87
Total private dwellings	2.05	1.74	1.95	2.77	1.93

Subject population: Women aged 15 years and over resident in New Zealand at home on census night.

Women who live in owned dwellings, either as owners, or part of the owner's family, or as a tenant/boarder, tend to have fewer children than women in rented dwellings, as is seen in Table 56. Similarly, women in dwellings owned with mortgages tend to have had more children than women in owned dwellings which are mortgage free. This relationship has the opposite trend to the one we find for women in general, where older women tend to have more children than younger women.

The implication of this is that women who have had larger families tend not to have their own home, and the presence of children clearly affects the options for paying a mortgage off. This further supports the relationship between family size and poverty. The higher average number of children for women in Housing New Zealand properties relatively to private rental accommodation reflects, in part, the eligibility criteria for Housing New Zealand rental accommodation.

Among rented dwellings (Table 57), we find a similar distribution in the age-adjusted average number of children as for all women in permanent private dwellings. This is especially so for European and Māori women whose usual residence is a rented temporary dwelling such as a caravan (extremely few Pacific and Asian women are in this situation).

Table 57

### Age-adjusted Average Number of Children by Rented Dwelling Type of Usual Residence

Rented Dwelling Type	Total Specified Women	Ethnicity <sup>..</sup>			
		European	Māori	Pacific	Asian
Separate house (including emergency house, women's refuge, DSW house, embassy)	2.31	2.10	3.14	3.18	2.06
Two flats or houses joined together	1.82	1.64	2.56	2.75	1.87
Three or more flats or houses joined together, in 1 or 2 storey building	1.72	1.51	2.49	2.57	1.81
Three or more flats or houses joined together, in 3 or more storey building	1.33	1.13	2.11	2.04	1.22
Flat or house joined to a business or shop	1.89	1.76	2.61	1.45	2.25
Bach, crib or other holiday home	1.94	1.74	2.88	0.60	0.76
Caravan, cabin or tent in a motor camp	2.05	1.86	2.18	0.67	0.62
Mobile or temporary dwelling (not in a motor camp)	2.27	2.15	2.67	1.34	0.44
Total private rented dwellings	2.14	1.94	2.97	3.03	1.95

<sup>..</sup>People may have more than one ethnicity and may be counted in more than one category.

Subject population: Women aged 15 years and over resident in New Zealand at home on census night.

Source: 1996 Census of Population and Dwellings

Table 58

### Percentage of Women Who Are Childfree by Rented Dwelling Type of Usual Residence

#### Percent Childless in Rented Dwellings

Rented Dwelling Type	Total Specified Women	Ethnicity <sup>..</sup>			
		European	Māori	Pacific	Asian
Separate house (including emergency house, women's refuge, DSW house, embassy)	38.0	40.6	31.2	33.4	44.2
Two flats or houses joined together	47.0	50.6	38.6	33.9	48.2
Three or more flats or houses joined together, in 1 or 2 storey building	50.5	54.7	45.0	37.5	47.7
Three or more flats or houses joined together, in 3 or more storey building	59.3	64.5	48.9	43.2	58.5
Flat or house joined to a business or shop	52.3	57.2	49.4	60.2	33.7
Bach, crib or other holiday home	42.6	44.1	35.0	25.0	50.0
Caravan, cabin or tent in a motor camp	39.1	42.4	31.2	45.0	58.3
Mobile or temporary dwelling (not in a motor camp)	42.3	45.5	36.6	35.7	42.9
Total private rented dwellings	41.4	44.4	33.7	34.3	45.9

<sup>..</sup>People may have more than one ethnicity and may be counted in more than one category.

Subject population: Women aged 15 years and over resident in New Zealand at home on census night.

Source: 1996 Census of Population and Dwellings

Roughly 34 percent of Māori and Pacific women in total rented private dwellings are childfree (Table 58). Among Asian and European women, the proportion is around 45 percent, but rises to nearly 65 percent for European women in multi-unit, multi-storey dwellings. The notable feature of this table is that the proportion of women who are childfree in rented dwellings is higher than that in all private dwellings (Table 54). This shows that there is a tendency for families to move from rented to owned dwellings as children arrive, whenever this is economically possible.

From this brief description of the relationship between the number of children a woman has given birth to and her housing, it is clear that there are a number of wider social issues involved. The relative levels of poverty, the effects of ethnicity, multiple ethnicities within families and family size are among the many themes which require further study.

## Chapter 13

# Conclusion

In the present study we have analysed census data. The crucial feature of this data is that it has no history. The significance of this is that we can examine the patterns at a single point in time. While we can compare data from one census with the data from other censuses, we can only do so at the aggregate level. We cannot be sure we are actually dealing with the same people, so we can only tentatively suggest possible relationships with longitudinal processes. Thus we have been constrained, for example, to examine the labour force outcomes of fertility decisions without being able to consider the fertility outcomes of labour force status.

Moreover, considering factors in isolation provides part of the equation. Social processes are always complex and involve the simultaneous involvement of many factors. The level of fertility is one of the outcomes of a raft of interacting conditions. While marital status was historically important in terms of assessing the regular availability of partners and a propitious environment for children, it is much less so now, even though partnered mothers still vastly outnumber non-partnered mothers. Moreover, in combination with contraception, careers and education, the regular presence or absence of a partner is by no means related directly to fertility outcomes.

A much stronger relationship is found between labour force status and fertility. Work experience and availability, together with the benefits of careers and the material benefits these imply, are significant drivers in the decisions to bear children and in the development of social mechanisms to ensure their well-being. These decisions should not be seen necessarily as calculated at an individual level, but may be seen as collective expectations from a set of conditions.

Education is the linch-pin in this scenario. Education not only provides women with independent access to information which they may otherwise be excluded from, it also provides access to a wider range of occupational opportunities. This may take the form of a career, around which a family needs to be carefully planned. While the inter-relationship between labour force status and education is much more complex than between education and occupation, for example, the relationship between the two and fertility is less so. The causal link between education and fertility is stronger in this direction than the reverse. Similarly, the link between fertility and labour force status indicates that fertility decisions have outcomes for a woman's labour force status and income not just at the time of childbearing, but also later in life. However, this effect is related to education and it is this link between education and both fertility and labour force status which is the key.

Perhaps the most significant outcome of recent fertility changes, though, is the growth of the childfree female population. As this group grows, there is the potential for significant social consequences, akin to class structures, to develop. Childfree women have quite different opportunities and needs than women who are caring for children or who have had children. The stigmatising of childless women as selfish and unpatriotic, characteristic of the 1930s, has long vanished, as has, almost, the view that these women are somehow deficient.

A set of related issues affect men as well, but this study has largely been unable to consider the many important and interesting aspects of male fertility since we do not in general have data, and what data is available is not amenable to analysis that would lead to secure conclusions.

The social and economic topography of New Zealand within which childbearing fits has undergone some major shifts in recent decades. Moreover, childbearing is a social function which has been enmeshed in a web of prejudices and fictions. Examples of those prejudices have been alluded to in this study, such as an historic stigmatising of childless women and unmarried mothers. Similarly, particular subgroups have been assumed to have particular behaviours, for example, the people of one or other religion having more children than other groups. This study has shown that in New Zealand, if ever religious affiliation was a genuine factor, it certainly no longer is a significant factor.

There are two components of New Zealand society, though, which are of major importance. These components are the ethnic and the geographic spaces, each of which are sufficiently complex and interesting to devote a separate study to, and are the focus of the two companion studies mentioned in the preface. Not only do they reveal a very strong diversity in the patterns in childbearing, but they are key structures within which the socio-economic processes operate, at the same time as being defined in significant ways by these processes.

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