

# Workshop on Labour Force Participation and Economic Growth

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## Women's Labour Force Participation in New Zealand and the OECD

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# Women's participation in the labour force

## 1 Introduction

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This paper is part of a programme of work being undertaken at the Treasury on labour force participation in New Zealand. It uses Census data to show the patterns of participation and non-participation among different groups of New Zealand women, and compares these with the patterns found in other OECD countries.

The focus of the paper is on women's participation and non-participation in the labour force, rather than on the number of hours they work. In many places in the paper, however, labour force participants are divided into full-time workers, part-time workers and the unemployed, which gives some indication of the amount of time they work. A fuller consideration of the hours worked by women, and by families as a whole, is given by Paul Callister in his paper at this workshop, and elsewhere (Callister 2005, 2004, forthcoming).

The basic economic model of labour supply and the rationale for investigating women's labour force participation are outlined in Section 2. This provides a background and a framework for the study. Section 3 briefly discusses the sources of data and some key definitions. Sections 4 and 5 lie at the heart of the paper. Section 4 is concerned with the participation of New Zealand women, namely how participation rates differ between women and men; how women's participation has changed over recent decades; how it may change in the future; and what personal and family characteristics are associated with participation and non-participation amongst women. In particular, groups of women are distinguished according to their age, qualifications, the presence and age of children, and whether women are sole or partnered mothers. Section 5 compares the participation rates of women across OECD countries, and identifies groups of countries that are similar in their participation profiles. This section also tries to identify the key differences between women's participation in New Zealand and their participation in other countries. Section 6 summarises and discusses the findings of this paper.

The paper compares participation rates between different groups of women and between women in different countries. These comparisons, however, do not in themselves constitute an argument for or against measures to increase the labour force participation of women in New Zealand. The figures presented here are intended to inform policy discussions but the mere observation of differences is not a rationale for policy. The rationale for policy responses, and the types of responses available, are discussed in other papers to be presented at this workshop.

## 2 The economics of participation

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### 2.1 The basic model of labour supply

People choose how much time they will spend working (per week, say, or per year) by weighing up the competing attractions of work and non-work activities. By working for pay, people earn money with which they can buy goods and services. On the other hand, people also value what they can do outside of paid employment, including unpaid production (housework, looking after children, painting the house, voluntary work, etc), study and leisure time.

According to the basic economic model of labour supply, people will spend more time in paid work if the goods they could buy with their extra income would be more valuable to them than the non-work activities they would have to forego (and *vice versa*). People do these sorts of calculations, for example, when they decide whether to work part-time rather than full-time, to get a second job, or to take a few months leave without pay to travel overseas. In this way, people decide how much work will maximise the satisfaction they get from both consuming goods and undertaking non-work activities.<sup>1</sup>

This description reveals the two key elements lying behind labour supply decisions. One is the net return that people get from different amounts of work, that is, what they will have in their pockets once they have earned wages; paid income tax, crèche fees, transport costs, etc; and have lost any entitlement to benefit income or subsidies. The other key element is the value that people place on non-work activities relative to the consumption of goods and services. This valuation is likely to be affected by factors such as family commitments, hobbies and interests, and how productive individuals are at performing household tasks. People often put a high value, for example, on spending time with their children, particularly during the first, formative years of their lives.

Some people do not wish to work, since their satisfaction is maximised (given prevailing wage rates<sup>2</sup>, income taxes, etc) by working no hours at all. These people are not participating in the labour force. They are in a situation where the income to be gained from paid work is not sufficiently attractive to lure them into giving up any of their non-work activities. On the other hand, people whose satisfaction is maximised by working one or more hours a week are said to be participating in the labour force. People are participating in the labour force if they are actually employed, full-time or part-time, or if they are unemployed and actively seeking work. The “participation rate” for a particular group is the proportion of that group who are participating, that is, who are employed or unemployed.

This simple model of labour supply has been extended in many different ways, to incorporate further aspects of labour supply decisions—for example to recognise that labour supply decisions are often made by families, rather than by individuals—or to take into account dynamic effects happening across the lifecycle. But even the simple model is

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<sup>1</sup> Labour supply theory is discussed in an accessible way in all introductory labour economics texts, eg Borjas (2000) and in much more detail in specialised texts such as Killingsworth (1983).

<sup>2</sup> Wages are determined by the interaction of the demand for labour (from firms) and the supply of labour (from individuals). The demand for labour therefore also has an effect on participation rates. Notably, during an economic slowdown, when lower demand for labour pushes wage rates down, many people opt out of the labour force for a time—the so-called “discouraged worker” effect. Also firms may affect participation because they demand labour in lumpy amounts, at a given time of the day or week, which may not suit prospective workers.

useful for understanding the patterns of participation we observe in New Zealand and for making broad predictions about the effects of policies. For example, we would expect to see that higher skilled people, who command higher wages, are more likely to be participating than lower skilled people. We would also expect to see that parents of children, especially young children, have relatively low participation rates as they have many things they would like to do, or feel they have to do, with their non-work time. In terms of policy changes, the model predicts, for example, that a childcare subsidy would increase the labour force participation of mothers of pre-schoolers, since the subsidy would have the effect of increasing the net return that these mothers get from working.

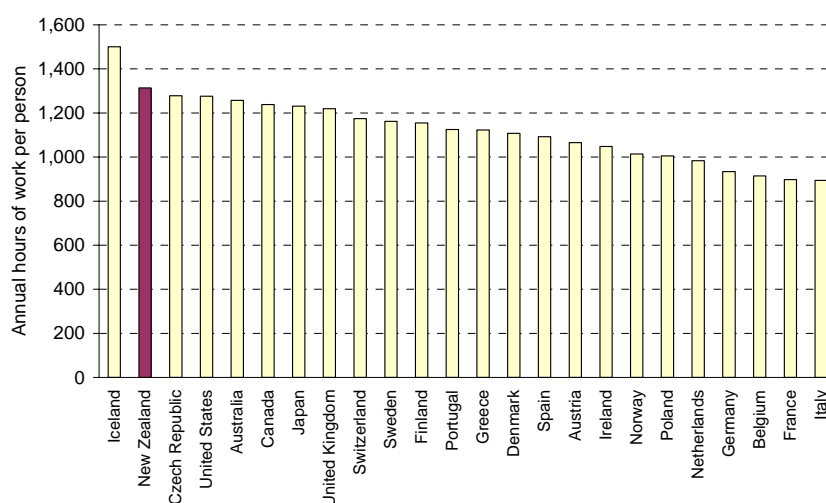
## 2.2 Why raise participation?

Recent interest in raising labour force participation in New Zealand has been motivated, in the first instance, by a consideration of economic growth. Mathematically, an increase in participation leads to an increase in the number of hours of work done in the country, which in turn leads to an increase in GDP per capita (all else being equal). This is evident from a consideration of the growth accounting framework used by the Ministry of Economic Development and Treasury (2005), which is outlined in the Appendix. In its Economic Survey of New Zealand, the OECD (2003a) also made this point, stating that an increase in participation would help towards New Zealand's goal of being in the top half of OECD countries for GDP per capita. The degree to which this might happen has been explored by Bryant, Jacobsen, Bell and Garrett (2004).

From international comparisons, Bryant *et al* (2004) also identified that New Zealand stands out amongst OECD countries for having low participation rates for women aged 25 to 34 years. The marked dip in New Zealand women's participation at this stage in the lifecycle does not appear to be a common feature in the OECD. In both the 25-29 year age group and the 30-34 year age group, participation rates for New Zealand women are ranked 22<sup>nd</sup> out of 24 OECD countries. This suggests, on the face of it, that younger women constitute a population group in which New Zealand could fruitfully encourage participation. The labour force participation of younger women, especially mothers, has therefore been a focus of recent policy discussions in New Zealand. The Prime Minister has said that the Government will look at a range of policies, including parental leave and childcare policies, to see how to boost both women's participation in the workforce and good outcomes for children (Clark 2005).

It is important to bear in mind, though, that the total quantity of work done in New Zealand, given the size of our population, is in fact very high by international standards. Figure 1 shows, for each country in the OECD, the number of hours worked each year per person of working age (15 to 64 years). Compared to people in other developed countries, New Zealanders spend a lot of time at work. The productivity of this work, however—the value of the goods and services produced per hour—is relatively low in New Zealand. Both the Ministry of Economic Development and Treasury (2005) and the OECD (2003a) consider that raising productivity, raising rather than increasing the quantity of work undertaken, is the key to a sustainable increase in New Zealand's GDP per capita.

**Figure 1 – Annual hours of work per person, men and women combined, for the population aged 15-64**



Source: Calculated from OECD Labour Market Statistics, 2003 data.

Raising labour force participation also has costs. In particular, as discussed in Section 2.1 above, an increase in paid work (which contributes to GDP) involves a trade-off with other uses of people's time. These other activities, like child rearing, housework, and leisure time, are not paid (so do not contribute to GDP) but are nonetheless valuable and contribute to the overall welfare of the country.

Nevertheless, it is clear that government policies already do affect people's decisions to participate in the labour force, whether or not this is the explicit or primary aim of these policies. In particular, government policies affect the net return that individuals and families get from working, which is a key element in their decisions about labour force participation (Section 2.1).<sup>3</sup> It is therefore worthwhile looking at whether some of these policies can be adjusted, or new ones developed, to encourage more people to participate in the workforce, taking into account the costs and benefits of this increased participation. The OECD (2003a) noted that, despite reasonably high overall participation rates, there are some groups of New Zealanders who do not experience good labour market outcomes. It may be, too, that increased participation is a desirable goal in itself, regardless of any contribution to the overall quantity of work done in New Zealand. In other words, society may consider it preferable to have more people in the labour force working fewer hours on average than they do now. An increase in women's labour force participation may be considered particularly valuable, in order to achieve some goals in the area of gender equity.

Whatever the policy rationale, a quantitative understanding of women's labour force participation is essential for formulating policy advice in this area. The remainder of this paper is devoted to providing such an understanding, looking at the participation of different groups of women in New Zealand and comparing these patterns of participation with those found in other OECD countries. Further discussion of the rationale for policy interventions, and the nature of possible interventions, is left to other papers in this workshop.

<sup>3</sup> Government policies may also affect labour supply decisions in other ways, for example in placing obligations on people receiving benefits, or in regulating firms in such a way that affects the demand for labour.

### 3 Data and definitions

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New Zealand follows international standards in defining the labour force.<sup>4</sup> Statistics New Zealand counts people as being in the labour force if they are either employed or unemployed, according to the following definitions.

**Employed:** people who, in the week covered by the census or survey, worked for one hour or more for pay or profit, or who worked unpaid in a family business or farm. People are counted as employed if they had a job but were not at work for reasons such as leave, sickness, or industrial action. Full-time workers are those who usually work 30 hours or more per week; part-time workers are those who usually work fewer than 30 hours per week.

**Unemployed:** people who, in the week covered by the census or survey, were without a paid job, were available for work, and had actively sought work in the previous four weeks, or had a new job to start within four weeks. A person whose only method of searching for a job has been to look at advertisements in the paper is not considered to be actively seeking work and is therefore not counted as unemployed.

The remainder of the population (that is, people who are not employed or unemployed) are classified as being “not in the labour force”. For a particular group, the labour force participation rate (or simply the “participation rate”) is the percentage of that group who are in the labour force; the employment rate is the percentage of the group who are employed.

Some people aged under 15 are undoubtedly working—on a paper round, for example—but little information on children’s employment is collected in New Zealand. In all OECD countries, people aged 65 and over have relatively little involvement in the labour force. The New Zealand and international analysis in this paper is therefore confined to people aged 15 to 64 years.

New Zealand data on labour force participation comes from two main sources: the Census, which is conducted every five years, and the Household Labour Force Survey (HLFS), which is conducted every quarter. The New Zealand data presented in Section 4 is from the latest Census, in 2001. A large amount of Census information on labour force status, analysed by demographic and family/parental characteristics, is readily available from the Statistics New Zealand website<sup>5</sup>, although a few additional tables were commissioned specially for this paper. Using the Census also means that sampling errors do not have to be considered.

From the outset, it is worth keeping in mind that the Census and the HLFS are “snapshots” of the population at a particular point in time and that individuals move between labour force states. For example, of the people who were not in the labour force in the December 2002 quarter of the HLFS, 12% had moved into the labour force by the following quarter (Statistics New Zealand 2003).<sup>6</sup> Readers should also be aware that the

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<sup>4</sup> The International Labour Organization definitions are detailed in the OECD’s documentation to their on-line labour market statistics database, at <http://www.oecd.org/els/lfs/lms.doc>.

<sup>5</sup> Census data on this website can be found at <http://www2.stats.govt.nz/census2001.htm>.

<sup>6</sup> This analysis is possible because households participate in the HLFS for 8 consecutive quarters and their labour force status can therefore be tracked over time. The new Survey of Family Income and Employment also contains some information on changes in labour force status (Statistics New Zealand 2004b).

participation rates reported in the Census and the HLFS are not identical: in particular the HLFS reports slightly lower participation rates for both younger (aged 15-24 years) and older (aged 55-64 years) age groups. The growth in women's participation since 1986, when the HLFS commenced, has also been lower than that reported in successive censuses.

The international data presented in Section 5 is collected from member countries by the OECD and is updated each year.<sup>7</sup> New Zealand contributes data from the HLFS. Other countries contribute data from a variety of different surveys. Given the measurement differences between countries it is best to exercise some caution when using these data, and not to place too much emphasis on relatively fine distinctions. Following Bryant *et al* (2004) and Gruen and Garbutt (2003) we exclude Korea, Mexico, the Slovak Republic, Turkey, Luxembourg and Hungary from all our comparisons.<sup>8</sup> All data in Section 5 are from 2003 (the latest available year) unless otherwise stated.

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<sup>7</sup> This data can be found online at <http://www1.oecd.org/scripts/cde/default.asp>.

<sup>8</sup> Korea, Mexico, the Slovak Republic and Turkey are excluded because their government social expenditures are very low, resulting in much stronger incentives for some population groups to remain in work. Luxembourg and Hungary have missing or dubious data. Overall participation rates for women in each of these excluded countries is reported to be lower than in New Zealand.



## 4 Women's participation in New Zealand

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### 4.1 Previous research

Empirical labour supply research tests and quantifies the relationships assumed in labour models (Section 2.1), using multivariate statistical models. There is a very substantial international literature on women's labour supply, as surveyed, for example, in Killingsworth and Heckman (1986). New Zealand studies of women's labour supply have been undertaken by Kalb and Scutella (2003a, 2003b), Winkelmann and Winkelmann (1997, 1998), Maloney (2000), Prebble and Rebstock (1992), Harris (1992), Poot and Siegers (1992), Brooks (1991), Lloyd, Fergusson and Horwood (1989, 1990), Ross (1987), and Hyman (1979).<sup>9</sup>

Most of these New Zealand studies have poor data, or no data at all, on wages and non-labour income, and many have had to rely on aggregated, rather than unit record, data. With the exception of Kalb and Scutella (2003a, 2003b), the data used in these studies is over a decade old. However, despite differences in quality, scope, and time period, the New Zealand studies are remarkably consistent in identifying those personal, family and economic characteristics which are independently associated with, and may help to predict, women's labour force participation. Being married, having children (especially young children), being a sole parent, and having low qualifications are all associated with lower participation rates.<sup>10</sup> Age is also a persistent factor, with a number of studies finding that the highest participation rates are in the middle age groups. A number of studies also find that the local unemployment rate, which is a measure of labour demand, affects women's participation: women in areas of high unemployment simply give up looking for work. The number of children in a family, on the other hand, seems to make little difference to women's participation.

Winkelmann and Winkelmann (1998) establish that immigrants, especially from non-English speaking countries, have lower participation rates than people born in New Zealand, even when taking demographic and family factors into account. The effect of having Maori ethnicity is less clear. The best study of Maori/non-Maori differences in participation is again by Winkelmann and Winkelmann (1997). They find that the demographic and family factors mentioned above explain, depending on the Census year used, between 78% and 95% of the difference in participation rates between Maori and non-Maori women. Ethnicity (or an unobserved characteristic which is correlated with ethnicity) appears to have only a modest independent effect on women's participation.

Those New Zealand studies which consider the effect of wages and other income generate results which suggest (as predicted by labour supply theory) that the greater the wages a woman can earn in employment, the more likely she is to be participating; conversely, the more income her family receives from other means, the less likely she is to be participating. Maloney (1997) and Prebble and Rebstock (1992) also find that a higher replacement rate (the ratio of what a person could receive on a benefit and the amount they could receive in paid employment) is associated with lower participation.

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<sup>9</sup> There have also been a handful of primarily descriptive, Census-based studies, such as Statistics New Zealand (1998, 1993) and the Ministry of Women's Affairs (2002).

<sup>10</sup> The question remains, however, as to whether household formation and fertility affect a woman's participation in the labour force, as labour supply models tend to assume, or whether causality runs the other way.



In what follows in this chapter, a simple picture of women’s participation is developed using data from the 2001 Census. Groups of women are distinguished according to the key demographic and family factors identified in the New Zealand labour supply studies—the age of the women, qualifications, the presence and age of children, and whether the women are sole or partnered mothers.

## 4.2 Patterns of participation

In the 2001 Census, a total of 352,000 women and 195,000 men aged 15 to 64 years were not participating in the labour force. Table 1 shows how many women in different age groups were, and were not, participating.

**Table 1 – Women’s participation and non-participation in the labour force, by age group**

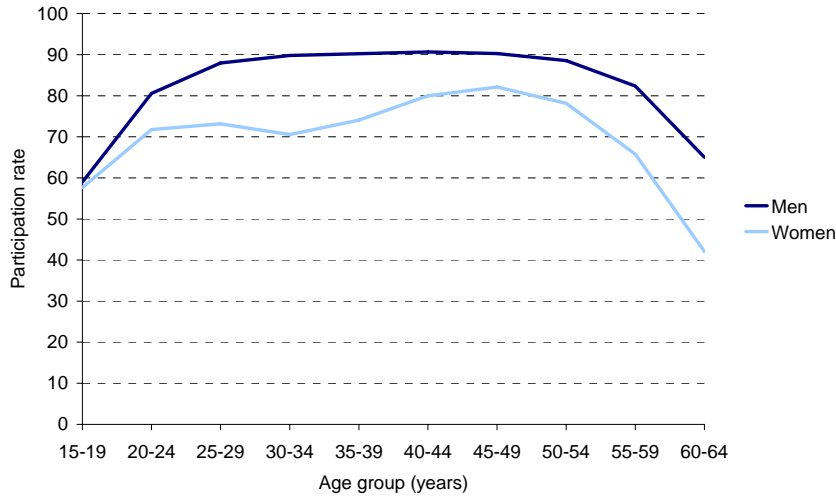
Age group (years)	Participating	Not participating	Participation rate
15-19	73,310	53,880	58
20-24	84,020	33,080	72
25-29	91,230	33,430	73
30-34	100,410	41,890	71
35-39	111,120	38,920	74
40-44	114,020	28,560	80
45-49	102,070	22,200	82
50-54	90,280	25,250	78
55-59	58,650	30,560	66
60-64	32,100	44,150	42
Total 15-64	857,200	351,910	71

Source: 2001 Census.

The participation rate is the number of people participating as a proportion of the total population (participating and not participating).

Women have a markedly different pattern of labour force participation than men (Figure 2). Except in the 15-19 year age group, participation rates for women are lower than those for men at all ages. Participation rates for women exhibit a characteristic dip, or m-shaped curve, which is not evident for men. Participation profiles for women and men are, however, similar in some ways. Both show relatively low participation rates amongst young people and declining participation amongst older age groups.

**Figure 2 – Participation of men and women by age**



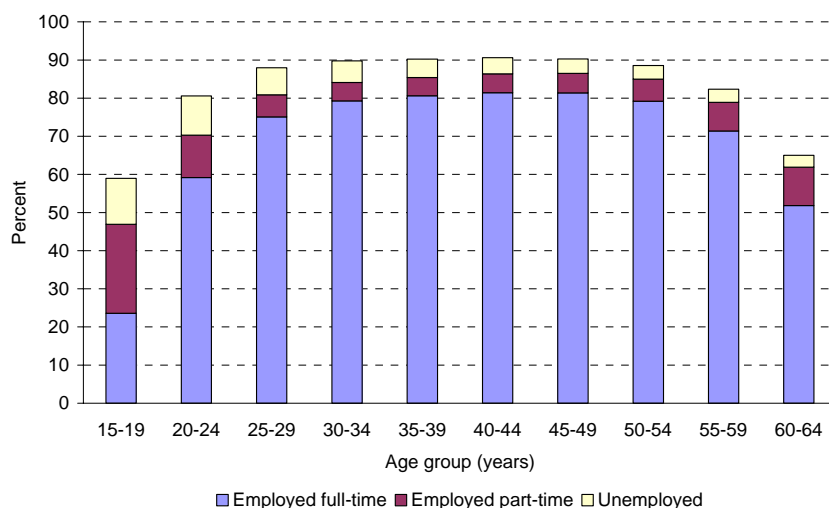
Source: 2001 Census.

Figure 3 expands on the simple participation rates in Figure 2 to show the proportion of people who are full-time workers, part-time workers, and unemployed. At all ages, women undertake much more part-time work than men. Three-quarters of the part-time workers in New Zealand are women.

**Figure 3 – Employment status by age**



**b. men**



Source: 2001 Census.

For both men and women, the relatively low participation of young people is largely explained by the high proportion of students in this age group. Declining participation rates among older people are likely to be the result of a number of factors, for example worsening health and increasing prevalence of disability; lower consumption when children have left home and the mortgage is paid off; and increased levels of non-labour income from investments and pensions.<sup>11</sup>

Amongst 25-54 year olds (the so-called “prime ages” for labour force participation) it is clear that many women, and some men, are not participating because of childcare and other household responsibilities. The participation of mothers is discussed in detail in Section 4.4. Other non-participants might be notional job seekers, sick or disabled, full-time students, or voluntary workers.<sup>12</sup>

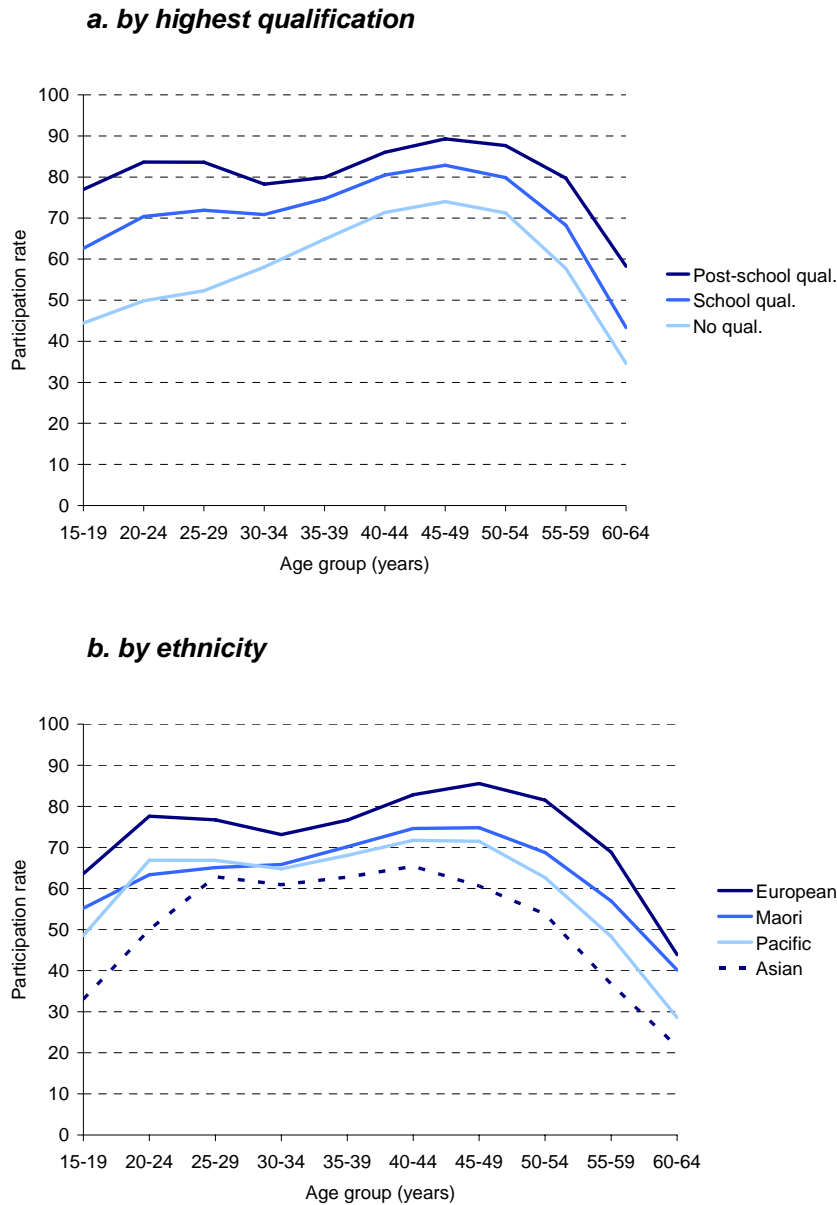
At all ages, women’s participation in the labour force is stratified by qualifications and by ethnicity (Figure 4). As the economic model of labour supply predicts, more-educated women—who can typically earn higher wages—have greater participation rates than less-educated women. At all ages, European women have greater participation rates than women in any other ethnic group. As discussed in Section 4.1, however, this may largely be because of differences in other measurable characteristics.

Notably, women with no qualifications, and Maori women, do not show any sign of a dip in women’s participation. At least partly, this may be because of higher fertility and younger parenthood in these groups (Statistics New Zealand 2004a, Dharmalingam, Pool, Sceats and Mackay 2004), so that women do not establish themselves in the labour force before they begin to have children.

<sup>11</sup> Jensen, Sathiyandra, Rochford, Jones, Krishnan and Mcleod (forthcoming) show that people with disabilities in New Zealand have lower participation rates. The prevalence of disability increases markedly with age (Maskill, Hodges, Burns and Carroll 2004). There is a significant international literature on the influence of health and disability status on labour force participation. The issues in this literature are discussed, for example, in Bound, Schoenbaum, Stinebrickner and Waidmann (1998) and Stern (1989).

<sup>12</sup> People who are not in the labour force might still be looking for work, but not as actively as the official definition of unemployment requires. Some of these notional job seekers will be receiving the Unemployment Benefit and some will not. Likewise, some of the people who are sick or disabled might be receiving a benefit or ACC compensation, and some will not. Dixon (1999) categorises prime-age men who are not in the labour force into these sorts of categories.

**Figure 4 – Women’s participation**



Source: 2001 Census.

Note that ethnicity is defined here using the total responses definition: if a person reported more than one ethnic group they have been counted in each applicable group.

## 4.3 Historical trends

### 4.3.1 Trends from 1976 to 2001

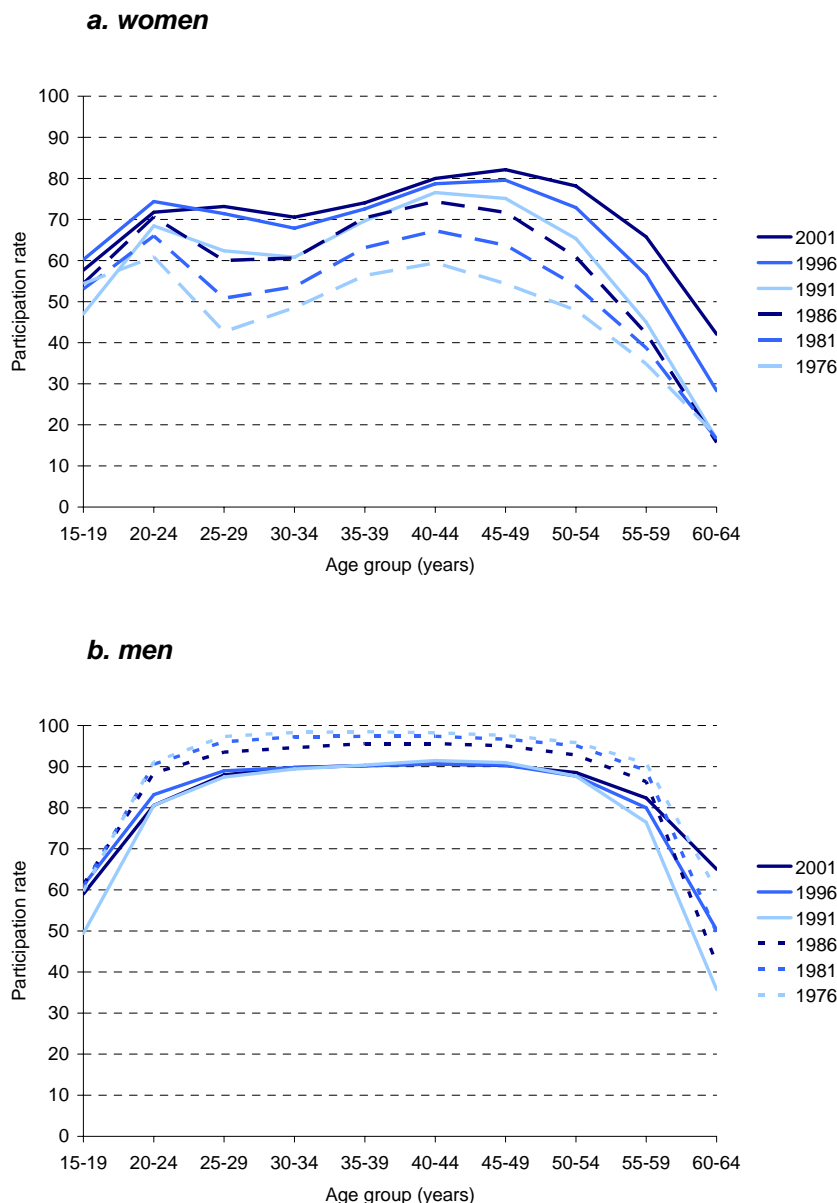
Figure 5 shows a consistent series of Census-based labour force participation rates from 1976 to 2001.<sup>13</sup> In most age groups, women’s participation has increased each Census

<sup>13</sup> Putting together a consistent historical series is complicated by issues of measurement—Census definitions, and therefore the data collected and presented, have changed over time. The wording of some questions has also changed between Censuses. Before 1986, full-time employment was defined as working 20 or more hours a week. Since 1986 full-time employment has been defined as working 30 hours or more a week. Also, before 1991, unemployment was defined simply as seeking work; from 1991 it was defined as actively seeking work, in line with the HLFs definition. The series shown here uses the latest definitions, and older Census data has been

(Figure 5a). The dip in women’s participation, which was very pronounced in 1976, has also been shallowing out, so that the “m-shaped” participation profile has become much less distinguishable over time. The dip has also moved over to the right, probably reflecting the trend of increasing age of mothers.

At the same time, participation rates for men, at least in the peak working ages, have been falling (Figure 5b). For older men, however, participation has increased markedly over the past decade, largely as a result of the increase in eligibility for Superannuation from age 60 to age 65 (Hurnard 2003).

**Figure 5 – Labour force participation, 1976-2001**



Source: Author’s calculations based on Census documents from 1976-2001.

While the increases in women’s participation and decreases in men’s participation have to some extent cancelled each other out, the overall trend has been towards increasing

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adjusted to reflect this. It has not been possible to extend this series back beyond 1976. To adjust for differences in the definition of unemployment, HLFS unemployment backdates calculated by Chapple (1994) have been used.

participation amongst the population as a whole. Except for 15-24 year olds, the total participation rate for men and women combined was higher for all age groups in 2001 than it was in 1976.

Most of the increase in “prime-aged” women’s participation since 1976 has been in full-time, as distinct from part-time, employment. In younger and older age groups, however, there have been large increases in part-time employment since 1976.

### 4.3.2 Longer-term trends

Table 2 shows a longer-term series of labour force participation, going back to the 1951 Census. By necessity, this series uses the pre-1986 Census definition of full-time participation which only counted people working for 20 or more hours a week. This series shows that the trend of increasing women’s participation and decreasing men’s participation extends back to the Second World War. The exception, for women, is in the 15-24 year age group, where participation has fallen markedly because of increased schooling and post-school education.<sup>14</sup>

**Table 2 – Full-time participation rates by age and sex, 1951-2001**

	15-19	20-24	25-34	35-44	45-54	55-64	15-64
<b>Women</b>							
1951	64.6	52.8	22.5	20.7	21.0	12.2	28.4
1961	64.1	49.8	20.9	25.4	28.7	17.8	31.8
1971	56.9	54.9	29.5	37.5	37.7	21.9	38.9
1981	49.5	63.7	41.1	51.9	48.6	22.3	45.8
1991	35.7	63.6	51.3	60.5	60.0	23.4	50.7
2001	32.1	59.0	59.7	61.7	68.0	41.9	56.4
<b>Men</b>							
1951	71.5	95.9	97.8	97.6	95.6	75.4	91.3
1961	65.5	94.6	98.5	98.3	97.3	81.7	91.1
1971	57.1	91.0	98.2	98.7	97.2	81.6	88.5
1981	56.6	91.0	97.1	97.6	96.1	69.9	86.2
1991	40.1	78.0	86.7	89.2	87.6	52.4	75.8
2001	39.1	72.6	85.3	87.3	86.2	69.4	77.2

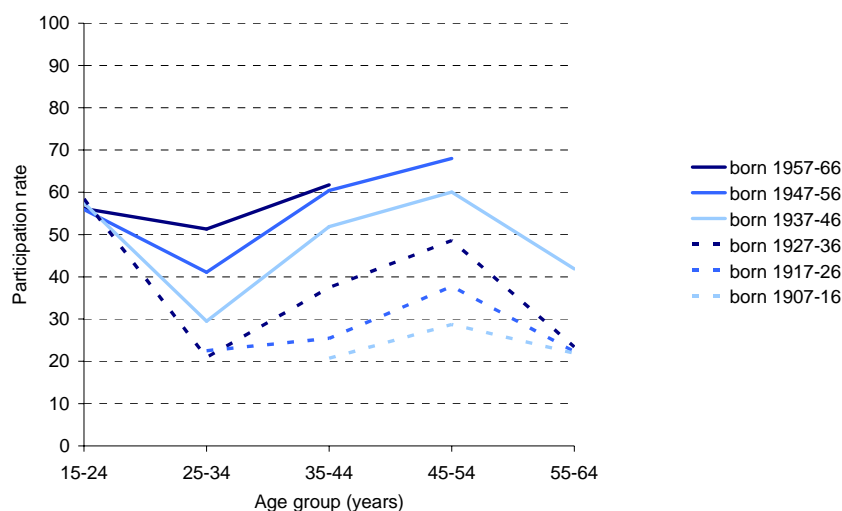
The labour force here consists of people employed for 20 or more hours a week, plus people who were ‘seeking work’ (1951-1981) or ‘actively seeking work’ (1991 and 2001).

Source: Statistics New Zealand, Census documents 1951-2001.

The 1951-2001 series can also be used to track the participation of different cohorts of women as this is measured in successive Censuses (Figure 6). At all ages, apart from the 15-24 age group, women in more recent cohorts have had higher participation rates than their predecessors. The dip in participation amongst 25-34 year olds has also become less marked with each successive cohort.

<sup>14</sup> Longer-term series of women’s labour force participation, although not age-specific series, are also presented in Hyman (1978), Horsfield (1988), Davies and Jackson (1993) and Revell and Brosnan (1986).

**Figure 6 – Participation of successive cohorts of women**



Source: Census documents 1951-2001.

The massive increase in women’s labour force participation since the Second World War has been a phenomenon in almost all developed economies (Jacobsen 1999). Some of the reasons given for this increase include:

- demand for labour causing the real wages of women to rise, therefore making it more worthwhile for women to work,
- changes in industrial composition (eg the rise of the clerical sector and the decline of agriculture and labouring),
- a growing number of part-time jobs, and their increased availability in a range of different occupations,
- technological advances making household work more efficient, and also producing goods (such as TVs) that cannot be produced at home,
- an increase in the schooling and post-school education of women,
- changes in family composition, due to factors such as an increase in divorces, delayed childbearing, smaller families, and an increase in the proportion of women not having children,
- changing conditions of work, and
- changing cultural and legal attitudes towards women at work.

#### 4.4 Participation of mothers

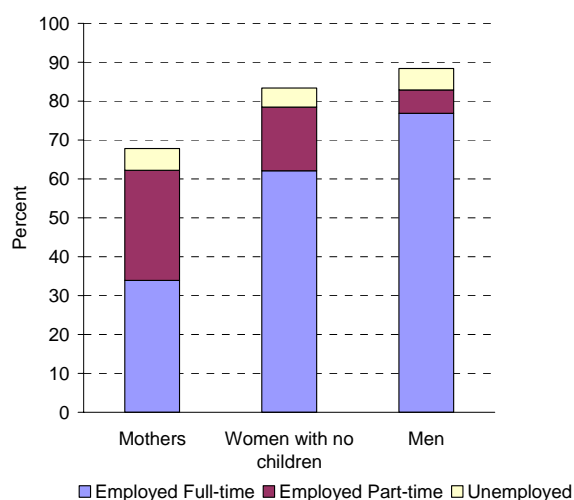
This section considers the participation of mothers with dependent children (just referred to here as “mothers”). Dependent children can be aged up to 17 years. Throughout this section the analysis is restricted to women (and to men in some places) who are aged 20 to 54 years, since few mothers are outside this age group.

Not surprisingly, mothers have lower participation rates than women with no children, and lower participation rates than men (Figure 7). Note that the category of “women with no



children” is not a homogeneous group—it includes women who are yet to have children, those whose children are older than 17 or have left home, and those who have never had children.

**Figure 7 – Participation of mothers compared to women with no children and to men**



Source: 2001 Census.

Analysis is restricted to people aged 20-54 years.

Figure 8a shows that sole mothers have lower participation rates than partnered mothers. Sole mothers have lower qualifications, on average, than partnered mothers. They are also more likely to receiving a social welfare benefit, and therefore to face the disincentives to work which are implicit in means-tested benefits.<sup>15</sup> Sole parents may also have a greater workload at home, since household tasks are not shared with a partner.<sup>16</sup>

Large families appear to have some effect, but in general the number of children in a family makes little difference to the mother’s participation (Figure 8b). On the other hand, the age of the youngest child in the family makes a marked difference to the participation of mothers (Figure 8c). In all, mothers with pre-school children (aged 0-4 years) have a participation rate of only 54%, but mothers with school-aged children (aged 5-17 years) have a participation rate of 79%. This latter rate is almost as high as that for women with no children (cf Figure 7). There are a number of possible explanations for the difference in participation between mothers of younger children and mothers of older children. One is that mothers consider it important to spend a good deal of time with very young children; another is that the school system supplies free childcare for at least part of the day, making it easier and less expensive for mothers to work.

<sup>15</sup> Benefits are highest at zero, or very few, hours of work and are progressively diminished as hours of work increase. These high effective marginal tax rates reduce work incentives for people on benefits.

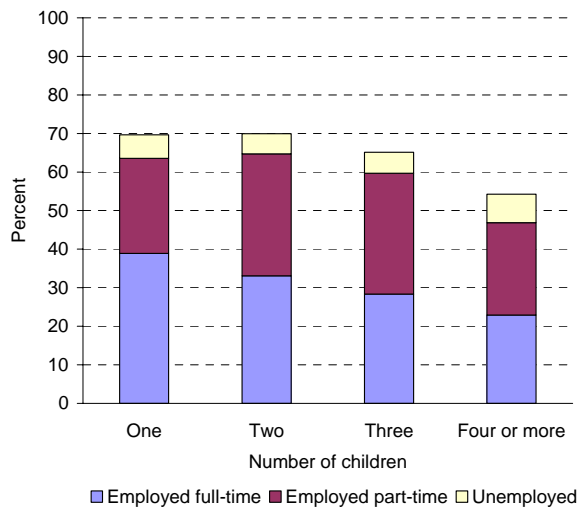
<sup>16</sup> Although, as Craig (2004) demonstrates, male partners can create more work for women, rather than reducing it.

**Figure 8 – Mothers’ labour force participation**

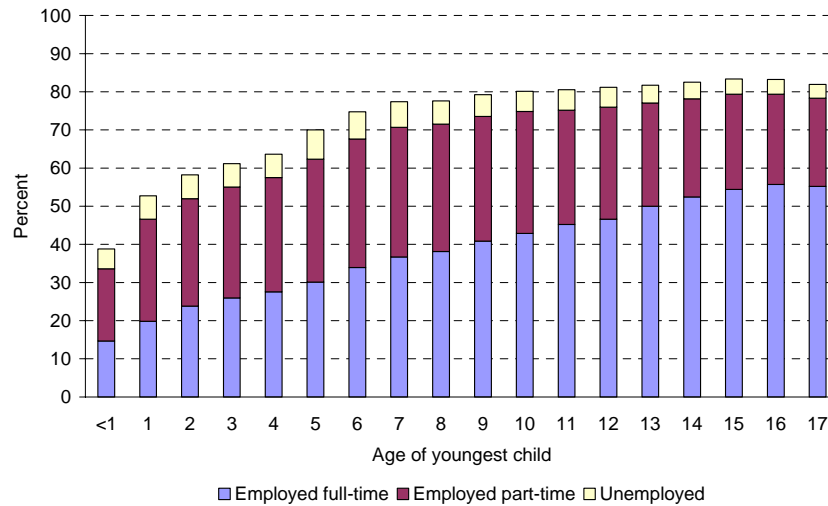
**a. by sole and partnered status**



**b. by number of children in the family**



**c. by age of youngest child in the family**



Source: 2001 Census.

Analysis is restricted to people aged 20-54 years.

Consistent with the New Zealand studies discussed in Section 4.1, the 2001 Census shows that qualifications (Figure 4a), being a sole or partnered mother (Figure 8a), and age of youngest child (Figure 8c), make a substantial difference to women's labour force participation. These factors are combined in Table 3, which shows that each of the three factors has an effect independent of the other two. So, for example, even when taking the age of children and mother's qualifications into account, sole mothers still have lower participation rates than partnered mothers.

**Table 3 – Participation of sole and partnered mothers by age of youngest child and highest qualification**

	No School qualification	School Qualification	Post-school Qualification	Total
<b>Sole mothers with youngest child:</b>				
0-4 years	32	44	56	42
5-9 years	56	68	77	66
10-17 years	65	76	85	75
any age	48	60	73	60
<b>Partnered mothers with youngest child:</b>				
0-4 years	47	56	64	57
5-9 years	72	80	86	80
10-17 years	79	85	91	86
any age	65	71	78	72
<b>All mothers with youngest child:</b>				
0-4 years	41	54	62	54
5-9 years	66	77	84	76
10-17 years	75	83	89	83
any age	59	68	77	69
<b>For comparison:</b>				
Women with no children	74	84	90	83
Men	83	89	94	88

Source: 2001 Census.

Analysis is restricted to people aged 20-54 years.

Table 3 shows that participation rates vary widely for different groups of mothers. At one extreme, for example, sole parents with a pre-school child and no school qualification have a participation rate of only 32%. At the other, partnered mothers with a child aged 10-17 and with a post-school qualification have a participation rate of 91%. In terms of labour force participation, mothers are a diverse group.

Having young children is perhaps the strongest single influence on labour force participation. Highly-qualified mothers with a child aged 0-4 years, for example, have a participation rate lower than unqualified mothers with a child aged 5-9 years.

Table 4 follows the same format as Table 3 but each cell shows the *number* of mothers who are not participating in the labour force. Again this highlights the importance of the age of youngest child. Nearly two-thirds of mothers not in the labour force have a youngest child under 5 (85,420 out of a total of 137,080).

**Table 4 – Number of sole and partnered mothers not in the labour force by age of youngest child and highest qualification**

	No School qualification	School Qualification	Post-school Qualification	Total
<b>Sole mothers with youngest child:</b>				
0-4 years	9,570	9,050	3,950	25,030
5-9 years	4,170	3,810	2,000	11,190
10-17 years	3,100	2,750	1,720	8,580
any age	16,850	15,610	7,670	44,790
<b>Partnered mothers with youngest child:</b>				
0-4 years	10,940	27,770	18,550	60,390
5-9 years	4,130	7,690	4,290	17,360
10-17 years	3,940	5,980	3,370	14,540
any age	19,010	41,440	26,210	92,290
<b>All mothers with youngest child:</b>				
0-4 years	20,520	36,830	22,500	85,420
5-9 years	8,300	11,510	6,290	28,550
10-17 years	7,040	8,720	5,090	23,120
any age	35,850	57,050	33,880	137,080
<b>For comparison:</b>				
Women with no children	20,610	25,770	15,550	71,610
Men	30,840	33,310	20,290	99,740

Source: 2001 Census.

Analysis is restricted to people aged 20-54 years.

Totals include people whose highest qualification was not stated or unidentifiable so may be greater than the sum of the individual columns.

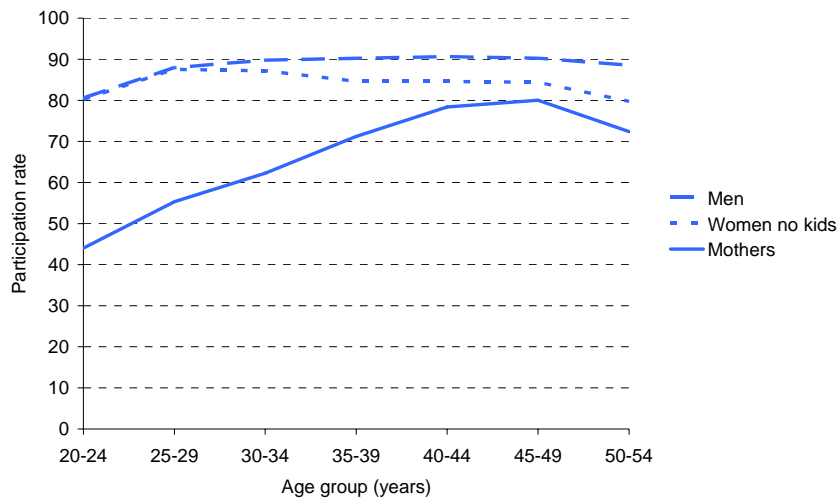
Table 3 and Table 4 also allow some “what if?” testing to take place. For example, if sole mothers were to have the same participation rates in each cell of Table 3 as partnered mothers, the overall participation of mothers would increase from 69% to 72%.<sup>17</sup> Of the additional 13,700 labour force participants that would result, only a half would have school or post-school qualifications.

We now turn to analysing mothers’ participation by the age of the mother. On the face of it, mothers’ participation increases with age, reaching a peak in the 45-49 year age group (Figure 9). Conversely, the participation of women with no children declines gradually with

<sup>17</sup> The overall participation rate for all women aged 20-54 (not just mothers) would rise by 1.5 percentage points.

age, although this may reflect a lower participation rate of women whose children have left home and who do not return to the labour force.

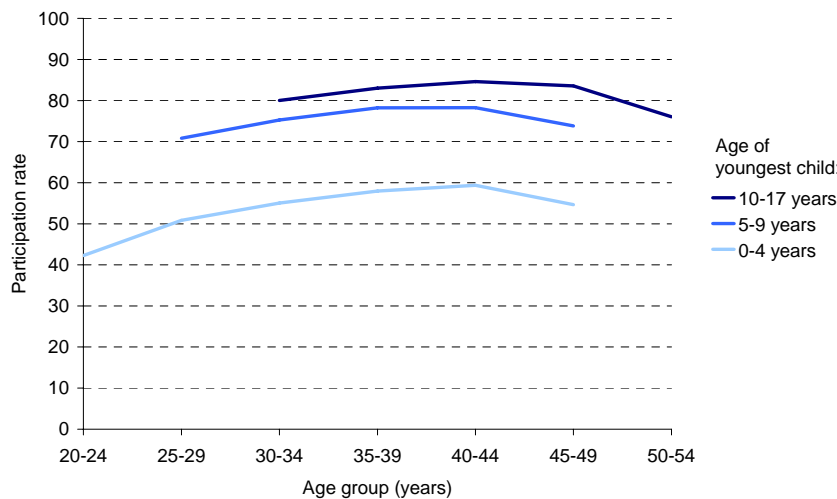
**Figure 9 – Mothers’ participation by age of mother**



Source: 2001 Census.

When the age of the youngest child is considered, however, mothers’ participation is in fact reasonably steady across age groups (Figure 10). What drives the steeply ascending participation profile in Figure 9 is simply that older women are less likely to have families with young children in them.

**Figure 10 – Mothers’ participation by age of mother and age of youngest child**



Source: 2001 Census.

Furthermore, the characteristic “dip” in women’s overall labour force participation, as illustrated in Figure 2, is explained largely by the age profile of mothers of young children. Women aged 30-34 years, for example, have relatively low participation rates because they are the most likely to have pre-school children (Table 5).

**Table 5 – Percent of women in each age group who are mothers, by age of youngest child**

Age of women (years)	Age of youngest child (years)			
	0-4	5-9	10-17	No children
20-24	18	1	0	80
25-29	33	8	1	58
30-34	42	17	5	37
35-39	30	28	17	25
40-44	11	22	35	32
45-49	2	8	31	59
50-54	1	2	12	86

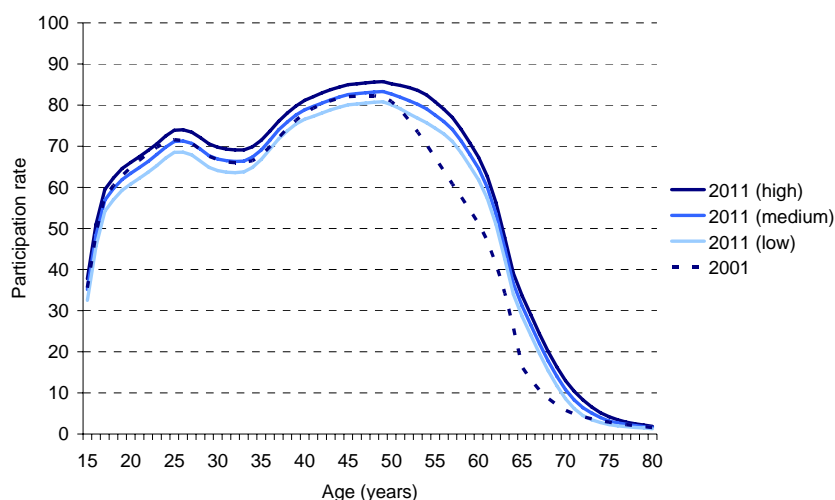
Source: 2001 Census.

Rows add across to 100%.

## 4.5 Projections of labour force participation

Statistics New Zealand (SNZ) projects future participation rates, by age and sex, to 2011. Projected participation rates for women—under high, medium and low scenarios—are shown in Figure 11. The most notable feature of these projections is the significant increase in participation rates for older women. This reflects an increasing flexibility in the age of retirement, with no compulsory retirement age, and increasing life expectancy. Increasing participation by older women is also consistent with the cohort analysis in Figure 6, where younger cohorts have entered the labour force in larger numbers than previous generations. As these women age, their higher participation patterns seem likely to persist.

**Figure 11 – Projected participation rates for women, 2001 (base) and 2011, under three scenarios**



Source: Statistics New Zealand.

High, medium and low refer to the three variants of participation rates produced by SNZ.

It is well known that New Zealand's population is ageing as result of the large "baby-boom" cohort growing progressively older. How will this affect the labour force of the future? Table 6 shows the results of applying the projected participation rates for women from Figure 11 to SNZ's medium population projections, to give a picture of the female labour force of the future. Projected participation rates are held constant after 2011.

Under all three scenarios, the female labour force increases in size and the average age of female participants grows (Table 6). The overall participation of women aged 15-64 years rises in the short-term, but not necessarily in the longer-term. Overall participation is greater in 2031 under the medium and high scenarios, but slightly lesser under the low scenario.

**Table 6 – Projections of the female labour force, 2001 (base) to 2031, under three scenarios**

	2001 (base)	2011	2021	2031
<b>Size of the female labour force (millions)</b>				
High	0.89	1.09	1.14	1.13
Medium	0.89	1.05	1.09	1.09
Low	0.89	1.01	1.05	1.04
<b>Participation rate of women aged 15-64</b>				
High	68	73	73	73
Medium	68	71	70	70
Low	68	68	67	67
<b>Average age of female labour force participants</b>				
High	38	40	41	42
Medium	38	40	41	41
Low	38	40	41	41

Source: Statistics New Zealand (2004a) and National Population Projections, 2001 base.

High, medium and low refer to the three variants of participation rates produced by SNZ.

Calculations are based on the Series 5 population projections, which assume medium fertility, medium mortality and long-term annual net migration of 10,000.

One key measure to consider in these projections is the proportion of the total population, both men and women combined, who are in the labour force. This gives a sense of the future "load" which will be carried by the labour force. This measure will be influenced by the changing age structure of the New Zealand population as well as by changes in participation rates. Table 7 calculates this measure, using SNZ's projected participation rates and projected populations for men as well as for women. Currently, just over half of the New Zealand population is in the labour force, but this proportion—after initially rising—may drop to less than half the population by 2031.



**Table 7 – Proportion of the total population who are in the labour force, 2001 (base) to 2031, under three scenarios**

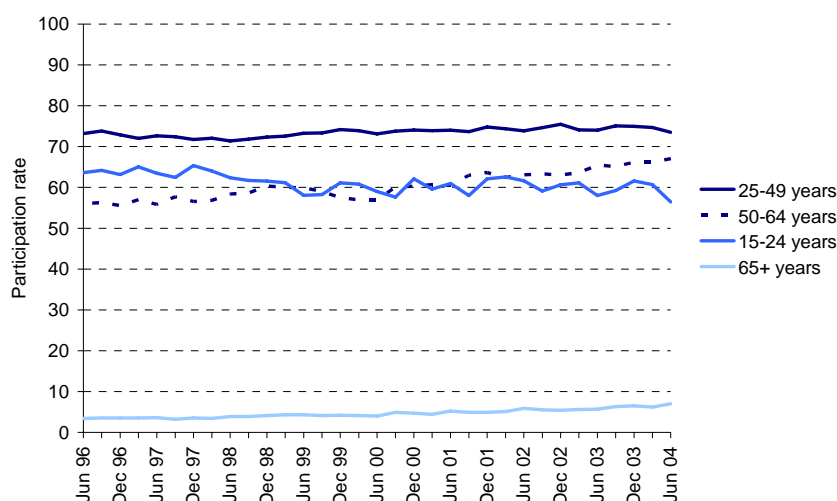
	2001 (base)	2011	2021	2031
High	51	55	54	51
Medium	51	53	52	49
Low	51	51	50	47

Source: Statistics New Zealand (2004a) and National Population Projections, 2001 base.

High, medium and low refer to the three variants of participation rates produced by SNZ. Calculations are based on the Series 5 population projections, which assume medium fertility, medium mortality and long-term annual net migration of 10,000.

Are these projections reasonable? At first glance it might seem implausible that participation rates for women aged 24 to 49 years should remain unchanged under the medium scenario, with only a small increase under the high scenario and a small decrease under the low scenario (Figure 11). In none of these three scenarios does the dip in women's participation flatten out. However, the projections in Figure 11 do continue the trends shown over the last 8 years in the HLFS (Figure 12). Over this time there has been little change in the labour force participation of prime-aged women, a slight decrease in the participation of younger people, and a marked increase in the participation of older women. These trends can also be seen by comparing women's participation in the 1996 Census and the 2001 Census (Figure 5a).

**Figure 12 – Women's participation rates from the HLFS, 1996-2004, for various age groups**



Source: Statistics New Zealand, Household Labour Force Survey.

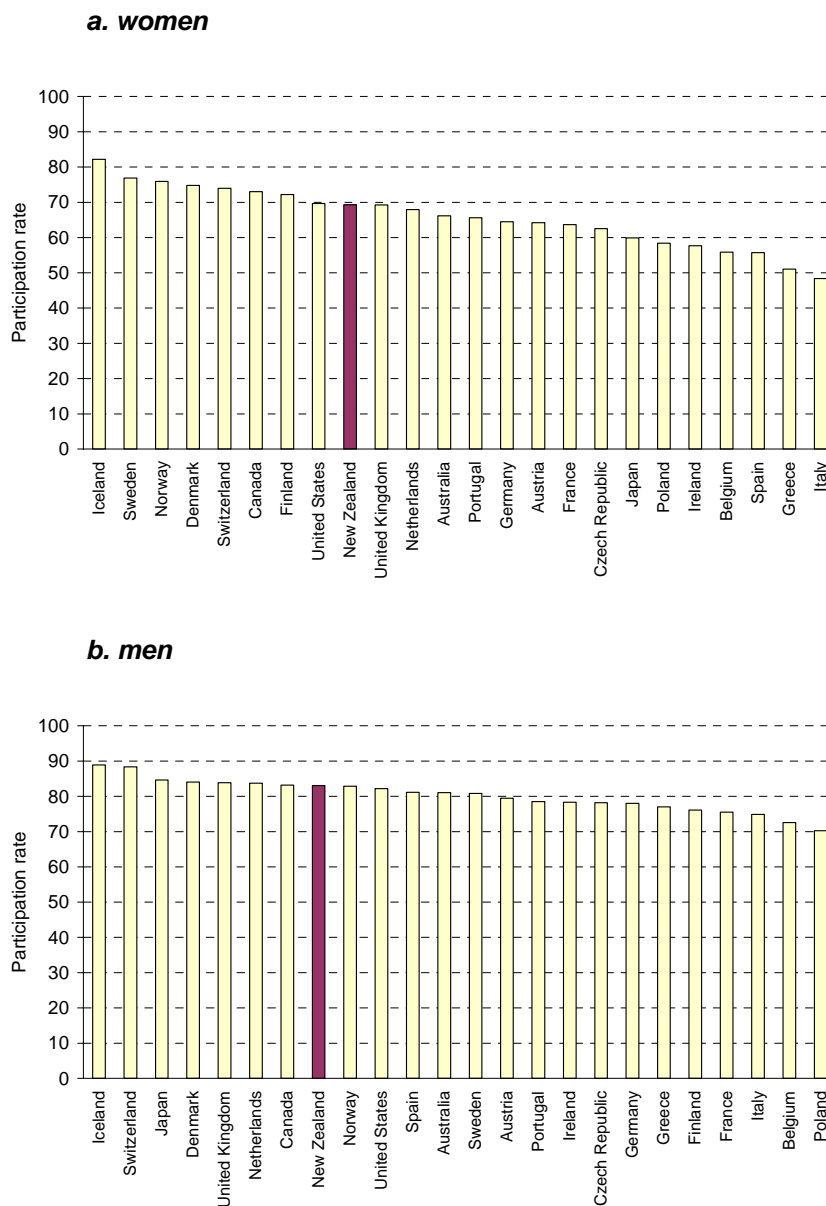
What is perhaps more questionable is the application of the 2011 participation rates to populations in 2021 and beyond. Participation rates will almost certainly continue to change after 2011, but SNZ are understandably loathe to project them out any further. More importantly, these projections of participation rates do not take into account dynamic effects within the economy. If population ageing means that labour becomes a relatively scarce resource, for example, then we should expect to see firms bidding up wages and thereby drawing people into the labour force. A model which takes account of these sorts of dynamic effects is a much more difficult undertaking, however, although attempts have been made to construct such models (eg Börsch-Supan 2001).

## 5 International comparisons

### 5.1 Labour force participation in the OECD

Participation rates for both women and men are reasonably high in New Zealand compared to other OECD countries (Figure 13). The Nordic countries (Denmark, Sweden, Norway, Finland and Iceland) tend to have the highest participation rates for women, although not necessarily for men. Iceland has very high participation rates for both sexes.

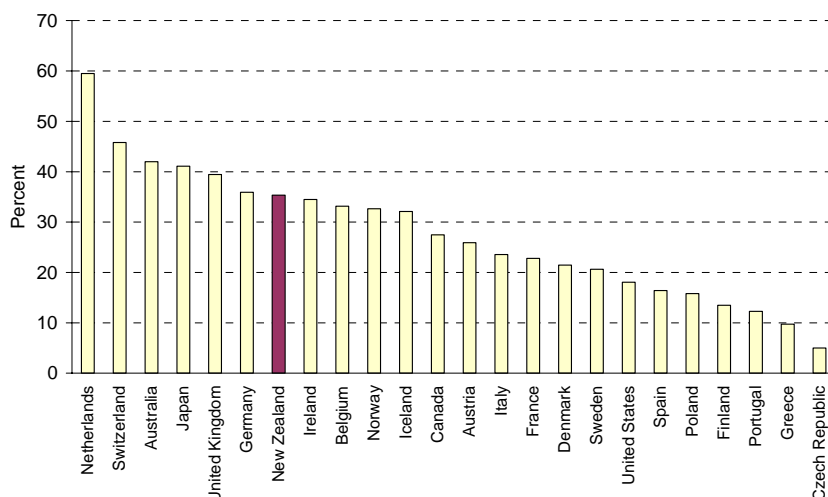
**Figure 13 – Participation rates in the OECD for the population aged 15-64**



Source: OECD Labour Market Statistics, 2003 data.

Compared to other countries, a relatively high proportion of female workers in New Zealand work part-time (Figure 14). The proportion of part-time work varies hugely across the OECD, from a high of 60% in the Netherlands to only 5% in the Czech Republic.

**Figure 14 – Part-time workers as a percentage of all female workers, 15-64**

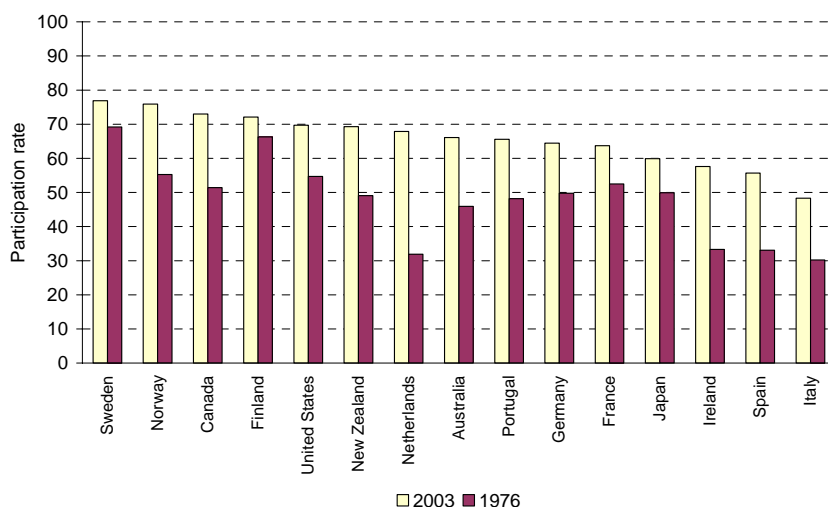


Source: OECD Labour Market Statistics, 2003 data; 2000 data for Switzerland, Czech Republic, Finland and Iceland from OECD (OECD 2002a) Table 2.1.

Differences in women’s participation rates between countries are likely to be due in part to differences in the sorts of factors discussed in Section 4, eg women’s wages, tax rates, education levels, family formation, sole parenthood, and the level of benefits relative to wages. The age structure of the working age population, and fertility rates, are also likely to have some effect on overall participation. Countries will also have different social norms, attitudes towards women working, laws about equal pay and discrimination, and different rates of government spending on childcare, parental leave and child benefits.<sup>18</sup>

Differences between countries have been reducing over time, at least for those countries which report participation rates from 1976 (Figure 15). The difference between participation rates in New Zealand and the Nordic countries, for example, has reduced markedly over this period.

**Figure 15 – Women’s labour force participation, 1976 and 2001**



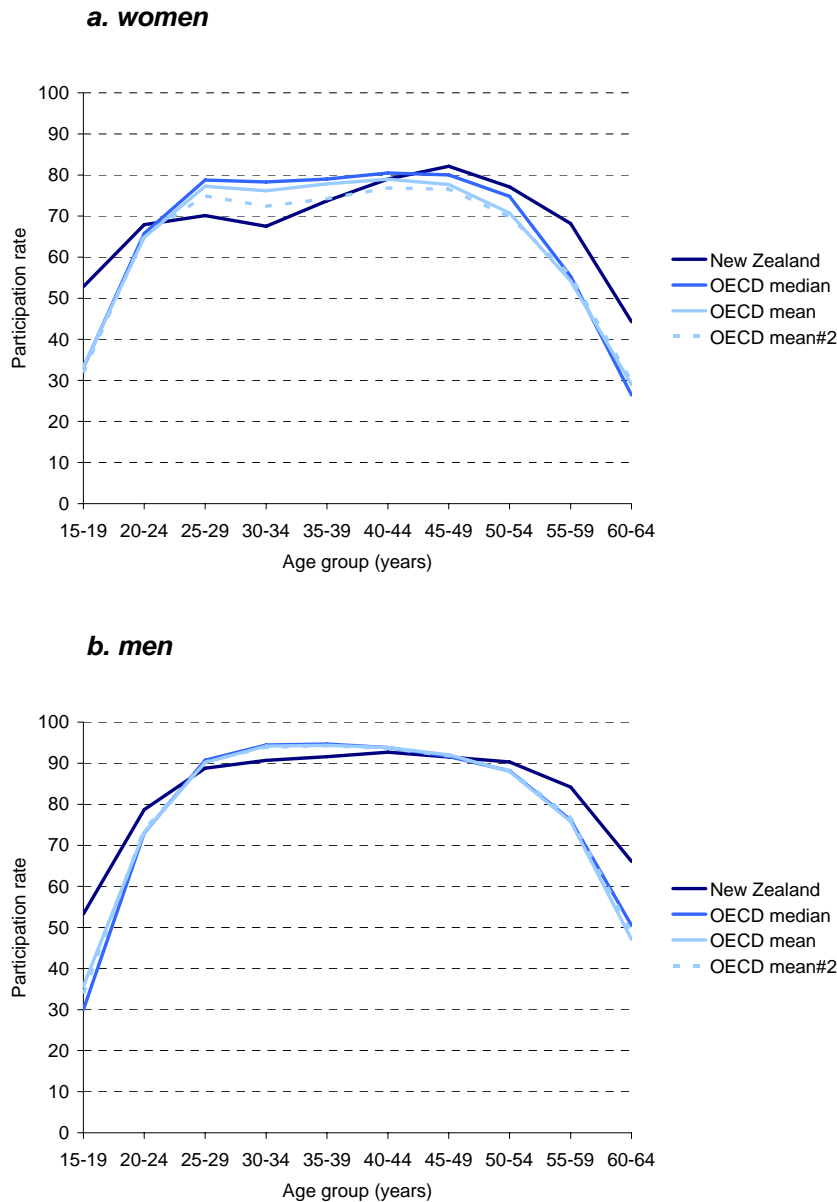
Source: OECD Labour Market Statistics; New Zealand data from the 1976 Census.

<sup>18</sup> Jaumotte (2003) reports the results of a multivariate study of women’s participation in 17 OECD countries which finds that many of these factors are independently related to participation.

## 5.2 Labour force participation by age

Looking at participation rates by age gives a fuller picture than just looking at overall participation. New Zealand has relatively low participation rates for both women and men aged 25-39, but relatively high participation rates for younger and for older people (Figure 16).

**Figure 16 – Labour force participation in the OECD**



Source: OECD Labour Market Statistics, 2003 data.

'Top five' is the mean participation rate of the overall highest-participating countries within each band. The top five countries for men and for women are as reported in Figure 13.

'OECD median' is the median participation rate within each age band; 'OECD mean' is the mean participation rate within each age band; 'OECD mean#2' is the mean participation rate within each band, weighted by the population of each country.

It is difficult to see how New Zealand differs from other countries, however, by just comparing participation rates with the OECD median or mean rates. The OECD is a diverse group of countries and it is instructive to look at the different patterns of women's participation within the OECD. Figure 17 shows the OECD countries grouped according to the shape and height of their participation profiles.

The Nordic countries, together with Canada, have the highest women's participation rates. Women's participation profiles in these countries are similar to those of men, although slightly lower at each age. Austria, France and Germany also have an n-shaped profile, although participation rates are slightly lower on the whole, and considerably lower for younger and older women. The Nordic countries, France and Austria have the highest rates of public spending on childcare in the OECD, together with generous paid parental leave provisions (Jaumotte 2003).

New Zealand, the United Kingdom, Australia and Switzerland all show a dip in participation around the peak childbearing ages. The United States has a hint of a dip, which has gradually flattened out over time (Jacobsen 1999). As in New Zealand, this dip is characteristic of women leaving the workforce when they have young children, and returning when their children are older. On the other hand, another group of European countries—many of them predominantly Catholic countries—have a participation profile which is consistent with a pattern of withdrawing from the labour force after marriage or childbirth and not returning, or returning intermittently, later in life.

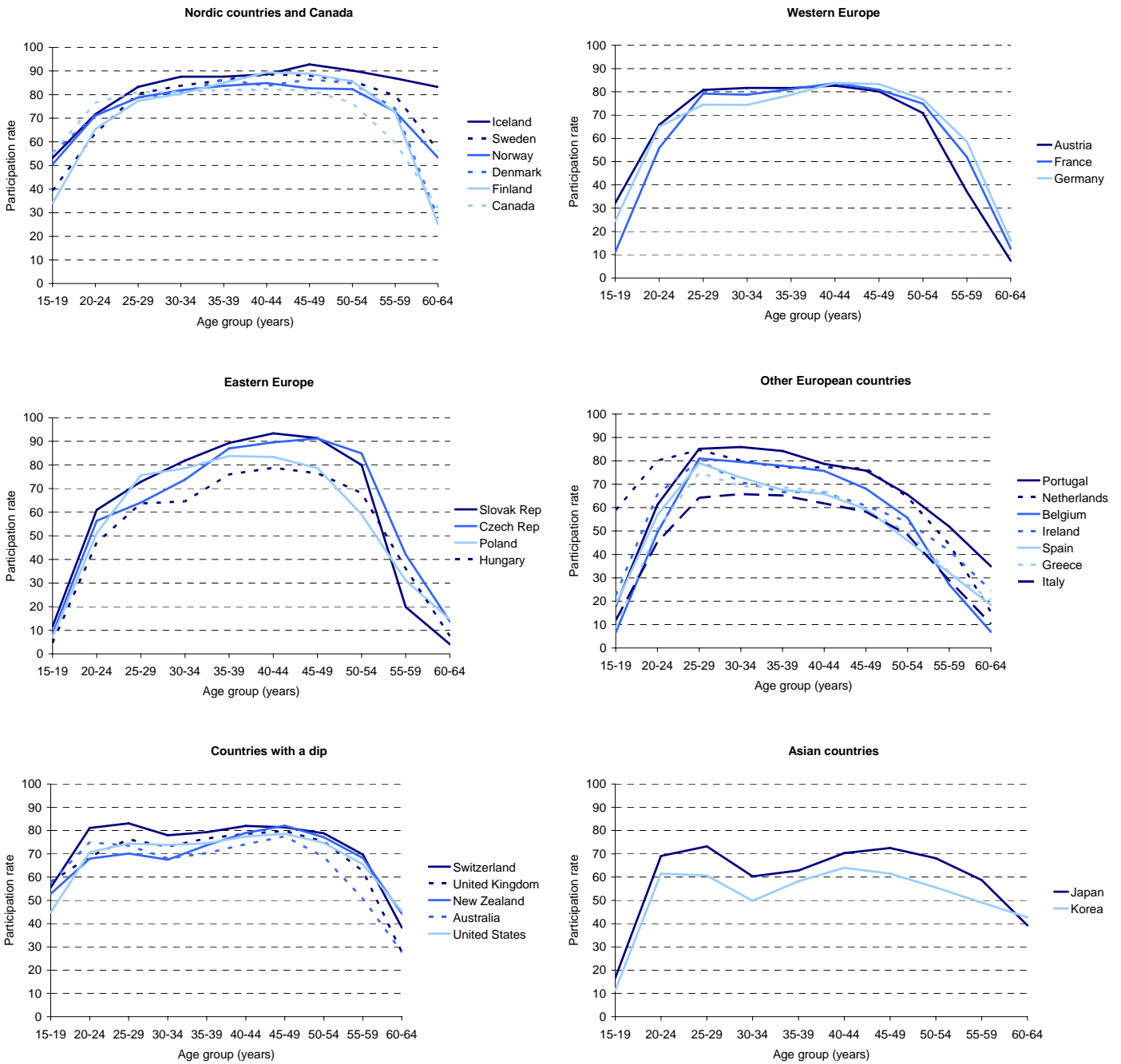
Eastern European countries tend to have a peak on the right-hand side, which is striking but difficult to explain. The OECD (2002a) says that this is the result of increased barriers for women to participate in the labour market during the transition period from a planned economy, which appears to have disproportionately affected younger age groups. Finally, the Asian countries in the OECD, Japan and Korea, also display dips around the peak childbearing ages, although these dips are much bigger than in the Anglo countries, and women's participation overall is much lower.

What these groupings show is that participation profiles are not randomly distributed across OECD countries. Countries with similar profiles of labour force participation often occupy the same geographical region, or share similar national values, norms or histories. These parallels shouldn't be overstated, and the match of profiles to countries is by no means perfect, but Figure 17 suggests that similarities in the labour force participation of women may be part of wider similarities between countries.

### 5.3 Employment and participation of particular groups of women in the OECD

The data presented in Section 4.4 identified that qualifications, the presence and age of children, and being a sole or partnered mother, are important influences on women's labour force participation. This section compares the employment or participation of different groups of women, defined by these characteristics, across the OECD. We consider, where we can, the employment or participation rate of different groups of women, and also their prevalence in the population. Both of these factors affect the overall participation of women in New Zealand compared to women in the OECD. For the most part, employment rates are reported here rather than participation rates, as this is how the data are presented in the various OECD publications. Employment rates differ from participation rates by not including people who are unemployed.

**Figure 17 – Groupings of OECD countries by women’s participation profiles**

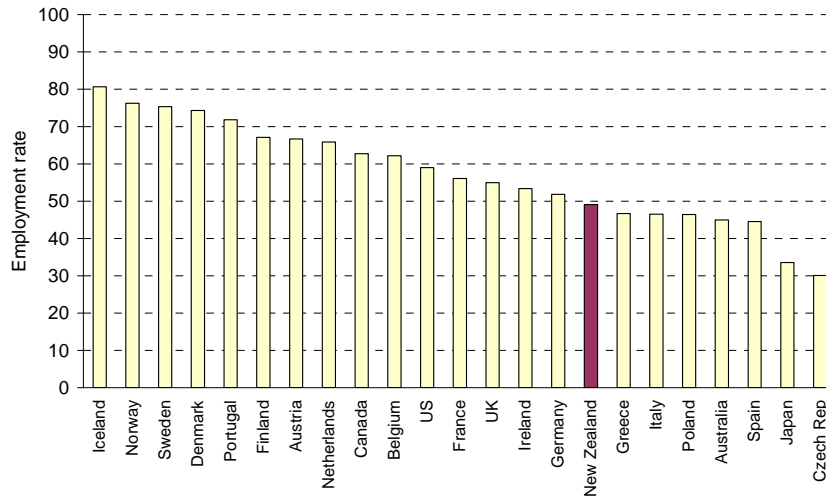


Source: OECD Labour Market Statistics, 2003 data.

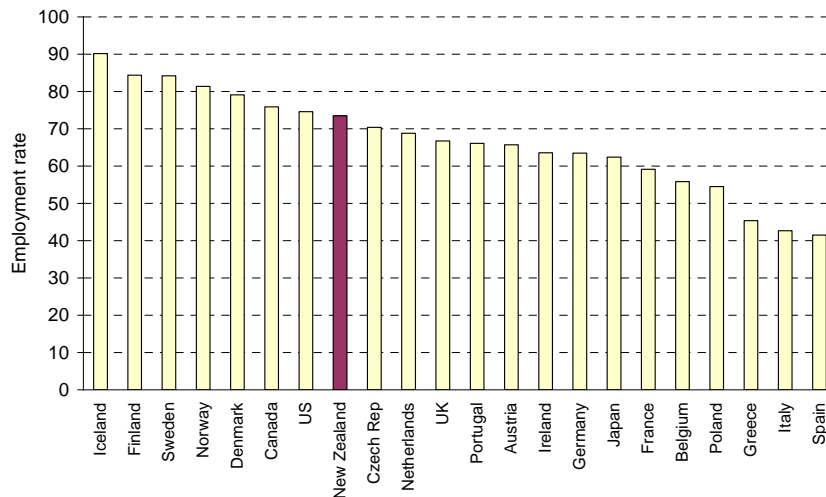
Compared to other OECD countries, the employment of women with pre-school children in New Zealand is low (Figure 18a). Women with school-aged children, however, have reasonably strong employment rates compared to those in most other countries (Figure 18b). The difference in employment rates between New Zealand women with pre-school and with school-aged children (24 percentage points) is the third-highest in the OECD, behind only Japan and the Czech Republic.

**Figure 18 – Employment of mothers in the OECD, 2001**

**a. with youngest child aged under 6**



**b. with youngest child aged 6-14**



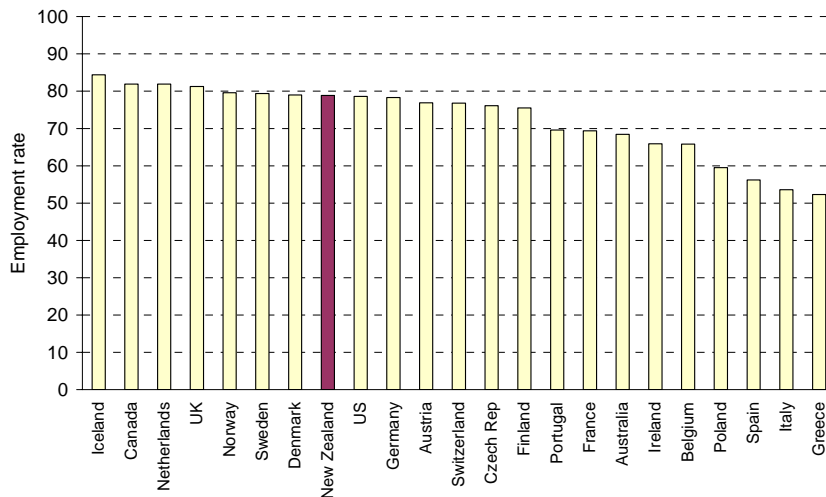
Source: Eurostat on-line data; individual countries' statistical agencies; OECD( 2002b) Indicator SS4.2.

Note that the relative position of New Zealand in these two figures does not change if the defining age for a pre-school child is taken to be under 5 years in New Zealand rather than under 6 years.

Furthermore, the employment of women with no children in New Zealand is up with the highest in the OECD (Figure 19).



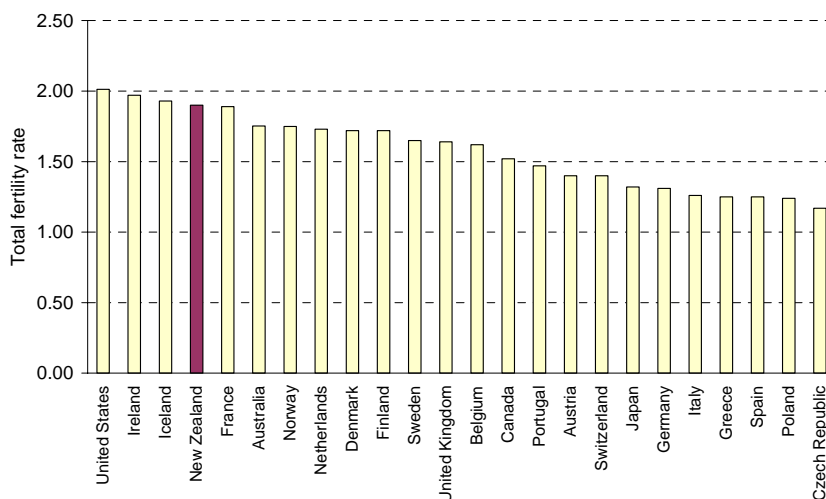
**Figure 19 – Employment of women aged 20-49 in the OECD with no children, 2001**



Source: Eurostat on-line data; individual countries' statistical agencies; OECD (2002a) Table 2.4.

Ideally, we would like to know what proportion of women in different OECD countries are mothers, and in particular what proportion are mothers of pre-school children. If New Zealand women are more likely to have children, especially young children, in their households compared to women in other countries, this would partially explain the low participation of New Zealand women of childbearing (and childrearing) age. Such information is difficult to find, however, so we use, as a proxy measure, total fertility rates across the OECD. This reveals that New Zealand has one of the highest fertility rates in the OECD (Figure 20). High fertility rates might explain some of the relatively low participation of younger New Zealand women, although it is also the case that Iceland has high fertility in conjunction with the highest participation rates in the OECD.

**Figure 20 – Total fertility rates in the OECD, 2002**



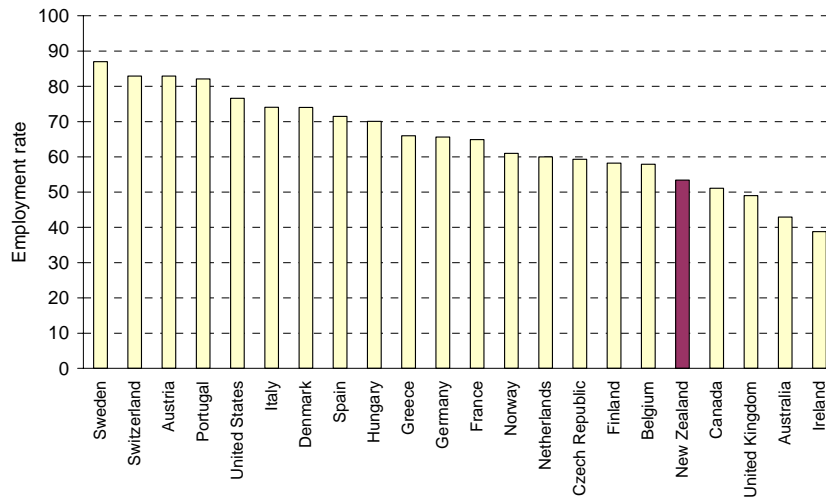
Source: OECD (2005) Indicator GE3.

The total fertility rate in a particular year is the average number of births a woman would have during her reproductive life if she were exposed to the fertility rates characteristic of various childbearing age groups in that year.

Turning now to sole parenthood, New Zealand stands out for its low employment of sole parents (Figure 21). Differences between countries in the employment of sole parents are likely to be caused, in no small part, by the eligibility for, and generosity of, social welfare

programmes for sole parents in the various countries. The OECD (2003a) suggests that the low employment of sole parents in New Zealand may be due to a lack of work requirements for sole parents, a relatively passive benefit system, relatively high benefit rates compared to the average wage, and high marginal effective tax rates.

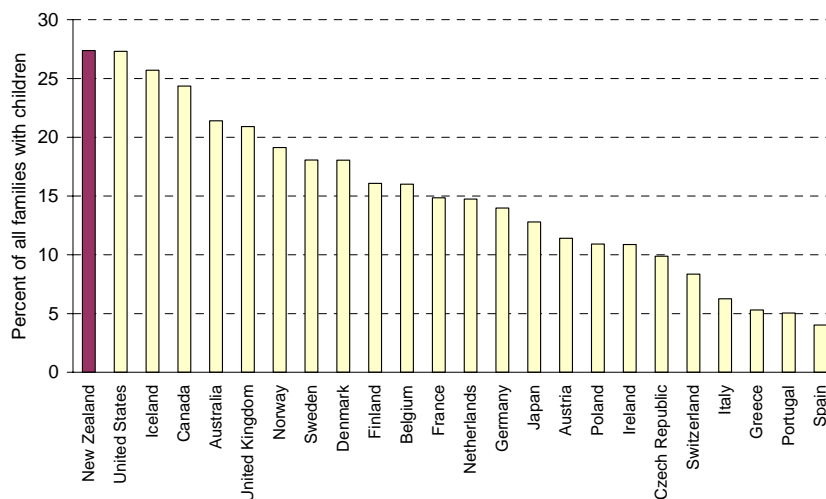
**Figure 21 – Employment of sole parents, various years (1996-2001)**



Source: OECD (2002b) Indicator SS3.2; OECD (2003b) Table 3.6; 2001 Census (New Zealand).

New Zealand also has a high prevalence of sole parent families (Figure 22). In New Zealand, sole parent families make up over a quarter of all families with children: together with the United States this is the highest proportion of sole parent families in the OECD.

**Figure 22 - Sole parent families as a percentage of all families with children, 1996**



Source: Eurostat on-line data; individual countries' statistical agencies; OECD (2002b) Indicator GE7.2.

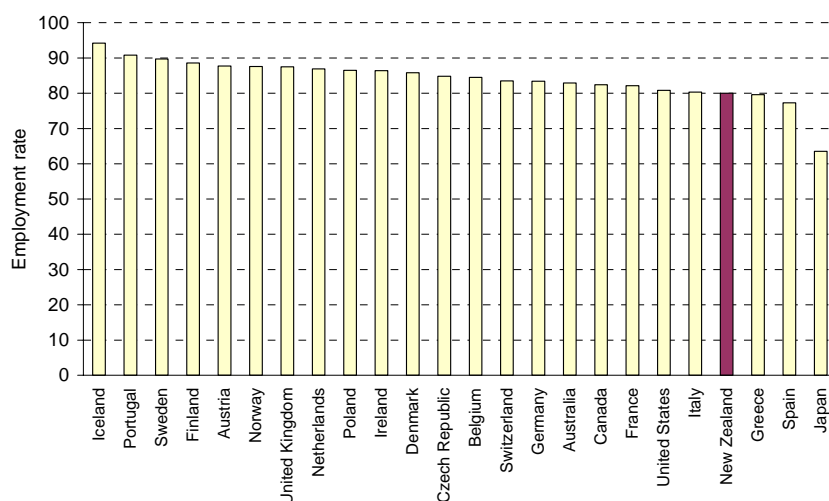
Given New Zealand's position in Figure 18a and Figure 21 it is not surprising that New Zealand has a very low employment rate for sole parents who have a child aged under 6 (32%).<sup>19</sup> This rate is the second-lowest in the OECD, ahead only of Australia (30%). By

<sup>19</sup> Data for 17 countries is available from the OECD (2001). New Zealand data is from the 2001 Census.

way of comparison, over 70% of Portuguese, Austrian and Italian sole parents with a child aged under 6 are employed.<sup>20</sup>

In general, New Zealand does not stand out from the rest of the OECD in an analysis of women's participation by educational attainment. International comparisons are difficult in this area, however, because of the differences in educational systems between countries and because of the opacity of the International Standard Classification of Education (ISCED) which is commonly used to make comparisons between OECD countries. It does appear, however, that New Zealand women who have attained a degree have relatively low employment rates compared to women with a degree in other OECD countries, although there is little to separate most countries (Figure 23). This relatively low participation of New Zealand women with a degree may be due to the low participation rates of women with young children in New Zealand. Even mothers of young children who have a post-school qualification have relatively low participation rates in New Zealand (see Table 3).

**Figure 23 – Employment of women 25-54 with a university degree, 2002**



Source: OECD Labour Market Statistics, 2002 data.

A university degree is defined here as the attainment of ISCED level 5A or 6.

## 5.4 Accounting for paid parental leave

The previous section has shown that differences between countries can be attributed in part to differences in the participation of, and prevalence of, different types of families. At least some of the difference between countries, however, might simply be due to the definition of “participation”. We illustrate this by comparing participation rates in New Zealand to those in the highest-participating countries in the OECD, the Nordic countries.

In official statistics, women on paid parental leave should be counted as employed, even though they are not working.<sup>21</sup> Nordic countries have amongst the most generous paid

<sup>20</sup> The circumstances under which sole parent families have been formed—for example, whether they have been formed through marriage break-ups later in life, or because of teen parenthood—might have an effect on the labour force participation of sole parents. These factors could influence, to some extent, the participation of sole parents in different countries.

<sup>21</sup> The OECD-ILO definition of employment says that “Persons temporarily not at work because of illness or injury, holiday or vacation, ... maternity or parental leave [etc]... should be considered as being in paid employment provided they have a formal job attachment” and that “formal job attachment should be determined... according to one or more of the following criteria: (1) the continued receipt of wage or salary; (2) an assurance of return to work following the end of the contingency, or an agreement as to the

parental leave provisions in the OECD but New Zealand has one of the least generous provisions (Table 8). Therefore at least some of the difference between the best performers of the OECD and New Zealand could be due to the unproductive “employment” of women on paid parental leave, who might equally be considered as not in the labour force, since they are not at work or available for work.

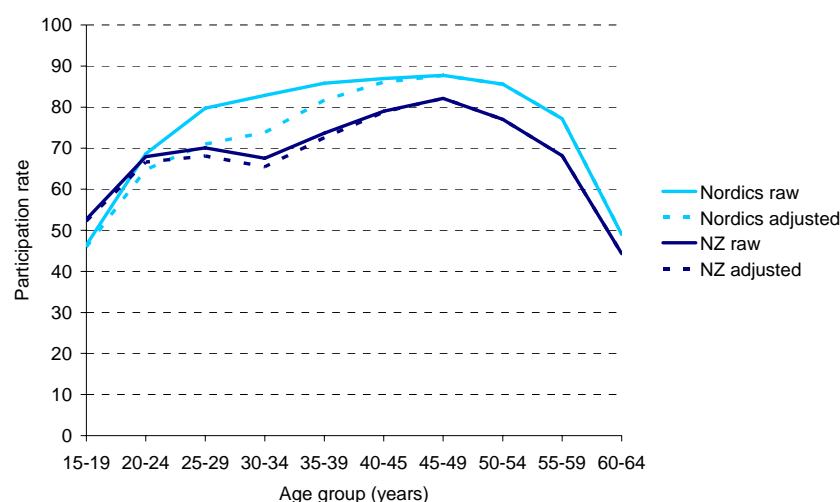
**Table 8 – Paid maternity leave provisions in Nordic countries and New Zealand**

Country	Maximum paid maternity leave
Sweden	78 weeks
Denmark	52 weeks
Finland	52 weeks
Norway	48 weeks
Iceland	26 weeks
New Zealand	12 weeks

Source: Social Policy Research Unit, University of York (<http://www.york.ac.uk/inst/spru/research/summs/welempfc.htm>).

The maximum effect of these differences in paid parental leave can be modelled by assuming that women take the maximum leave available for all their children and adjusting the reported participation figures to reflect this. Figure 24 shows that after this adjustment there is a marked ‘dipping’ in participation rates in the Nordic countries. When adjusted, the profile of women’s employment rates in these countries loses its n-shape, and becomes much more like the profile in New Zealand. The difference in participation rates of women aged 25 to 39 years is also markedly reduced after adjustment.

**Figure 24 – Women’s participation in Nordic countries and in New Zealand, raw and adjusted for maximum time on paid parental leave**



Source: OECD Labour Market Statistics, 2003 data; age-specific fertility rates from Eurostat on-line data.

Participation rates for the Nordic countries are the mean, for each age group, for Iceland, Norway, Denmark, Finland and Sweden.

date of return...”. It is difficult to know exactly how each country operationalises this definition, but a formal job attachment is usually taken as including paid parental leave, but not long periods of unpaid leave (Gruen and Garbutt 2003). Nordic official publications show that a large number of mothers of young children are employed but not actually at work during the week of the relevant survey.

This may indicate that some of the difference in participation rates between countries, at least in the peak child-bearing ages, is an artefact arising from the way women on paid parental leave are treated in labour force statistics.

## 6 Conclusion and discussion

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People who are not participating in the labour force are in a position where the net income to be gained from paid work is not sufficiently attractive to entice them into foregoing any of the other unpaid, but no less valuable, uses of their time. Labour force participants, on the other hand, are either employed or actively seeking work.

New Zealand women's labour force participation rates are lower than men's at all ages and exhibit a characteristic "dip" in the younger age groups. Women's participation rates have been rising since the Second World War, and each cohort of women has had a greater level of participation, at all ages, than their predecessors. Women's participation rates are projected to rise further, at least in the older age groups, over the next decade.

Among New Zealand women, the presence and age of children, being a sole or partnered mother, and level of qualifications have a strong effect, and each factor has an effect which is independent of the other two. Mothers with different combinations of these characteristics have widely varying participation rates. At one extreme, for example, sole parents with a pre-school child and no school qualification have a participation rate of only 32%. At the other extreme, partnered mothers with a child aged 10-17 and with a post-school qualification have a participation rate of 91%. Clearly, in terms of labour force participation, women, even younger women with children, are a diverse group. Family factors also explain the dip in women's participation: women aged 25 to 39 years have low participation rates because women in this age group are the most likely to have pre-school children at home.

Compared to other OECD countries, New Zealand has a relatively high overall female participation rate. Yet, participation rates for women between the ages of 25 and 39 are conspicuously low by international standards. Few other countries show a dip in participation rates in the peak childbearing ages. This point of difference seems to be driven by a combination, in New Zealand, of relatively low participation rates among mothers with young children and sole mothers, together with high fertility rates and high proportions of sole parent families.

While New Zealand women tend to leave the labour force when they have children, they also tend to return strongly to paid employment when their children get older. The participation of New Zealand women with older children, and with no children, is relatively high compared to other countries and, as a consequence, New Zealand women aged 45 years and over have strong rates of participation compared to older women in other countries.

This pattern of participation over the life-cycle may in part reflect a different life-course approach in New Zealand compared to many other countries: in New Zealand the balance between motherhood and participation might be achieved more by sequential rather than by concurrent patterns of paid and household work. In other words, women in New Zealand do not necessarily wish to combine work and childrearing at the same time, but to wait until their children are older before spending a good period of time in paid employment again. Alternatively, the participation of younger mothers in New Zealand may be low because of difficulties in accessing satisfactory childcare or suitably flexible jobs, or because the market wages that younger mothers can earn are not high enough to entice them into joining the labour force.

Differences in participation between countries may also reflect differences in government policies (such as tax and benefit policies) or social norms (such as the attitudes towards, and expectations of, women working compared to looking after their children). OECD countries can be grouped according to their pattern of women's participation across ages, and these groupings to a considerable extent reflect similarities in the countries' values, social conventions, institutions and recent histories. Not surprisingly, New Zealand's profile is most similar to Australia and the United Kingdom: countries with whom we share a common heritage. The participation profile of New Zealand men, relative to the OECD, is also similar in many ways to that of New Zealand women, with relatively high participation rates for younger and older people, but relatively low rates for people aged around 25-39. These similarities support the case for the existence of particular "country effects", which affect both women and men.

Finally, as illustrated in Section 5.4, the differences in participation between countries might to some extent be spurious, reflecting the definition of participation, or each country's interpretation of that definition. It is difficult to know how big this effect is, although the maximum effect is marked.

How does all this inform the public policy question of whether, and how, to encourage the greater participation of women in New Zealand? Some initial thoughts are be hazarded here. Firstly, since different groups of women, and mothers, have widely differing participation rates, any policies which aim to increase the participation of women would need to be carefully focused. One type of policy is unlikely to work for all women. Also, since some groups of women already have high participation rates, policies which aim to increase this participation even further may incur high deadweight costs.

The analysis in this paper also shows that the presence of pre-school children is a key factor in explaining women's participation in New Zealand, and compared to other countries. This reinforces the fact that the desirability of time spent with young children versus working is central to policy considerations. Such considerations need to go beyond the simple participation/non-participation analyses presented in this paper, and think about the time spent at work and at home by both parents combined, as Paul Callister does in his paper for this workshop (Callister 2005). As Figure 1 shows, the hours that New Zealanders work, relative to the size of the working age population, is already amongst the highest in the OECD.

In the short-to-medium term, overall participation rates for women in New Zealand are likely to rise without any change in policy settings, although there may be some fluctuations according to the state of the economy. Policies which aim to increase women's participation may be pushing a rock downhill. Historically, women's and men's participation rates in New Zealand have been gradually converging, as have been women's participation rates in the OECD. It would be no surprise if these trends continued in future decades.

Finally, we need to consider how much to concern ourselves with differences in participation rates between countries, some of them rather fine and perhaps even spurious. The gap which exists between the participation of young women in New Zealand and other OECD countries clearly shows that an increase in participation is possible, but says nothing about the costs and benefits of this increased participation. Also, it may not be straightforward to quickly imitate the patterns of participation which other, very different, countries demonstrate. Women's participation rates as high as those in the Nordic countries are not likely to be achieved through one or two policy instruments, but may require sustained social change over a longer period of time.



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## Appendix – Growth accounting

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GDP per capita can be decomposed in the following way:

$$\frac{GDP}{P} = \frac{hours}{P} * \frac{GDP}{hours}$$

where

$P$  = population

$hours$  = hours worked per year

So GDP per capita can be considered as the product of the number of hours worked per capita (labour utilisation) and the value of the goods and services produced per hour worked (labour productivity).

Labour utilisation can be further decomposed as follows:

$$\begin{aligned}\frac{hours}{P} &= \frac{hours}{WAP} * \frac{WAP}{P} \\ &= \frac{hours}{E} * \frac{E}{WAP} * \frac{WAP}{P} \\ &= \frac{hours}{E} * pr(1-ur) * \frac{WAP}{P}\end{aligned}$$

where

$WAP$  = working age population

$E$  = people employed

$pr$  = participation rate

$ur$  = unemployment rate

So labour utilisation is a function of the average hours worked by workers, the participation rate, the unemployment rate, and the proportion of the population who are of working age.

All else remaining equal, an increase in the participation rate will therefore increase labour utilisation, which will in turn increase GDP per capita.