Multiple Job Holding data from the Time Use Survey 1998/99

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CONTENTS

EXECUTIVE SUMMARY

- The Time Use Survey has produced population-based estimates which indicate the incidence of multiple job holding (MJH) across the whole economy at 13.1% in 1998/99. This compares with census-based estimates of 10.0% in 1996 and 10.1% in 2001, a difference of approximately 30%.

- Comparisons tend to suggest that people respond differently to the TUS and census surveys; the former being an interviewer-administered survey which required respondents to think in more detail about the number and nature of all their jobs, while the latter is self-administered and no questions at all are asked about the details and nature of second and third jobs.

- The difference in national MJH rates estimated from the TUS and the census appears closely linked to the significantly higher numbers of multiple job holders identified through the TUS and not to minor differences in the numbers of single job holders reported.

- When MJH rates are analysed by sex, the differences between TUS estimates and census-based estimates are considerably greater for women (33%-43%) than for men (19%-28%). In both cases, the analysis points strongly to significant differences in people's response on multiple job holding when prompted with detailed questions on their whole range of work activities.

- When comparing the proportions of MJHers who are women and men, the TUS estimates appear to fit the inter-censal trends.

- There are some distinct differences in the responses from different ethnic groups. This may imply under-representation of Pacific Island and Asian workers in the TUS sample.

- For NZ Maori and NZ European, once again the data show that the source of difference between TUS and census-based estimates of MJH rates derives more from differences in the data on multiple jobs than differences in data on single jobs.

- The TUS estimates for workers with one job only appear reasonably consistent with the census data across the whole spectrum of age bands. The biggest differences between TUS estimates and census data for multiple job holders occur with higher rates for 15-19 year olds, 20-29 year olds and 30-49 year olds, implying as previously that the TUS was more effective at eliciting such data because of its method of administration

- There appears to be reasonable agreement between census and the TUS estimates on the proportions of multiple job holders in each category of employment.

- The TUS indicates that (when investigated in depth) people are more likely to record their unpaid work as a second or third job rather than a first or main job. The TUS also indicates that wage and salary earners are the largest grouping of workers for first and second jobs, but by the third job self-employment is the dominant employment status.

- The discrepancies between TUS and census estimates are very substantial for people who are self-employed or unpaid in their nominated first job. This might imply that the under-reporting or mis-reporting of multiple job holding that is very likely to occur in the census may be most pronounced for these categories of workers.

- Analysis by occupation reveals the most systematic differences between TUS and census estimates. This is very likely due to the possibility that, when prompted in an interviewer-administered survey which explores details of second and third jobs, people respond differently by designating different jobs as their first or main job[1].

- Analysis of occupations pursued in first and second jobs (possible only with the TUS data, not the census data) reveals that in no occupational type (Level 1) is there a majority of MJHers who work in the same occupation for their first and second jobs.

- The analysis reported here identifies some important apparent discrepancies between the TUS and census data sets, but also some degree of reinforcement to do with longitudinal trends. The analysis raises issues about the need to adapt the work-related sections of existing instruments for gathering national statistics, such as the census and the HLFS in order to reflect better the changing nature of labour markets in New Zealand.

[1] The census determines first job by the number of hours worked rather than by respondent preference

1 INTRODUCTION

1.1 Background

This working paper examines data on multiple job holding from the Time Use Survey (TUS) and discusses the usefulness of this data set in relation to data from the Census of Population and Dwellings.

The purpose of this research programme[2] is to provide knowledge about the way individuals, families and communities are adapting to social and economic change through multiple job holding (MJH). The programme complements and extends previous research into the characteristics of work in natural resource sectors to provide comprehensive information on multiple job holding across a range of sectors.

The research, which began in 2001, has two main objectives. The work in these objectives was focussed on:

- developing a profile of multiple job holding in New Zealand over recent years. Data bases used include various census surveys 1981-2001, the NZ Household Labour Force Survey series (1985-), and the Time Use Survey discussed here (1998/99);

- identifying factors which encourage or inhibit the adoption of multiple job holding as a change strategy, and determining the impacts of multiple job holding on individuals, families and communities, through a series of sector studies.

The initial profiling work, based on an analysis of the 2001 Census of Population and Dwellings, was reported in Baines et al (2002) and Baines and Newell (2003a). A time-series analysis of trends in multiple job holding based on the three census 1991, 1996 and 2001 was reported in Baines and Newell (2003b)[3].

1.2 Extending the statistical analyses - time series and comparisons

Several strands of work have been identified for extending the initial profiling work and the initial (1991-2001) time-series analysis. As work progresses to harmonise classifications between different census, the time-series analyses will be extended to cover the 20-year period from 1981 to 2001. The extended census-based time series will provide the basis for making comparisons with the national Household Labour Force Survey (HLFS) data on labour market trends and multiple job holding for the period 1985 till the present. This comparison is strategically important to the research because it is the HLFS database which feeds directly into Department of Labour policy analyses. However, the census-based data set is much richer in detail and therefore has the potential to complement the HLFS with more detailed input to labour market policy making, and indeed to policy making in other areas such

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2 The research is funded by the Foundation for Research, Science and Technology, contract TBAX0204.

3 Since the initial profiling work (Baines and Newell, 2003a) and initial time-series analysis (Baines and Newell, 2003b) were published, minor corrections have been made to the data on MJH numbers in 2001, which have resulted in a very small upwards revision of MJH numbers and MJH rates for 2001. As a result, the overall national MJH rate reported in Baines and Newell (2003a, p.6) as 9.7% is now reported as 10.1%. This change in results will be fully reported in a forthcoming Working Paper on the 1981-2001 Time Series analysis.

as industry training and job creation, if the two data sets can be reconciled effectively. Comparison of census-based employment data and HLFS data will be the focus of another Working Paper in this Multiple Job Holding Working Paper Series.

The Time Use Survey (TUS) is of particular interest in this programme on multiple job holding because it is the only survey which has gone into any detail at all about the second and third jobs which New Zealanders with more than one job hold. Although the sample size is relatively small, and the capacity for cross-tabulation therefore very limited, the Time Use Survey does give some additional insights into the labour market phenomenon of multiple job holding in New Zealand.

Analysis of the MJH data from the Time Use Survey, and comparison of these data with census-based data is the focus of the remainder of this Working Paper. The analysis presented in this Working Paper addresses the central questions: what does the Time Use Survey say about multiple job holding in New Zealand, and how does it compare with the census-based analysis? The Working Paper provides a basic presentation and discussion of the data. Wider comparison and commentary is provided in other papers from the research programme.

1.3 A comparison of census and survey samples

The populations from which the various surveys and the census are carried out are very different in scale, as Table 1 reveals.

Table 1 Comparison of census and survey sample sizes

Census/survey	Timing	Population sample size
Census of Population and Dwellings	Five-yearly intervals; most recently in March 2001	2,889,530 aged 15 years and above
Household Labour Force Survey	Quarterly since 1985	30,000 individuals in 16,000 households
Time Use Survey[4]	Once only so far: July 1998 - June 1999	~8,500 individuals

1.4 Basis for the data

As indicated in Table 1, the TUS gathered data from ~8,500 individuals. From this sample, Statistics NZ has provided a derived data set which is scaled up to be equivalent to the national Working-Age Population (i.e. people aged 15yrs+). By contrast, the population census results are not scaled up to adjust for net undercount. The net census undercount for the census was estimated to be 1.6% in 1996 and increased to 2.2% in 2001 (Statistics NZ, 2002). For this reason, where absolute values of census counts are provided in this report, they have been scaled accordingly in order to make the two data sets comparable.

[4] Carried out in conjunction with the Ministry of Women's Affairs.

2 TIME USE SURVEY RESULTS

2.1 Overall MJH rate

From all responses where the total number of jobs was specified, Statistics NZ has scaled the responses to indicate there were 1,732,152 employed. Of these, the breakdown by number of jobs is as follows:

One job only	1,505,932	86.9%
Two jobs	200,166	11.6%
Three or more jobs	26,054	1.5%

On the basis of these figures, the TUS estimates the national rate of MJH at 13.1% in 1998/99. This compares with the census-based estimates of 10.0% in 1996 and 10.1% in 2001. Table 2 compares the relevant data from the 1996 and 2001 census with the estimates produced by Statistics NZ from the TUS sample. Both the census and the TUS record data on paid and unpaid work in a family business or farm[5]. The Index presented in Table 2 allows comparison of the absolute values for the TUS and the 2001 census with absolute values from the 1996 census.

Table 2 Comparative data for total employed and multiple job holders

	1996 Census		1998/99 TUS		2001 Census	
	#	Index	#	Index	#	Index
workers with one job only	1,490,749	1.00	1,505,932	1.01	1,586,995	1.06
workers with two or more jobs	166,163	1.00	226,220	1.36	178,273	1.07
total employed	1,656,912	1.00	1,732,152	1.05	1,765,268	1.07

The data for single job holders shown in the top row of Table 2 is consistent with a steadily expanding labour force during the period 1996 to 2001 (see, for example, HLFS data in Table 3 below). The differences in MJH rates between TUS and census-based estimates appear to have much more to do with data on multiple job holders than data on single job holders. This suggests that the differences may arise because people have responded differently to the various survey instruments.

The differences between the absolute counts of total employed from the 1996 and 2001 census and the 1998/99 TUS are explained in part by the net census undercount in the census results. The 1998/99 TUS scaled estimates are informed by the 1996 post census enumeration survey, for which the net undercount estimates were later increased following the more comprehensive 2001 post census enumeration survey.

It is perhaps not surprising that the TUS indicates a higher level of MJH than the census. The TUS was an interviewer-administered survey which required respondents to think in more detail about the

[5] Small businesses and farms constitute a substantial proportion of business enterprises in New Zealand, many of which are owned and operated as family businesses. It is not unusual for some family members to work in such businesses on an unpaid basis; that is to say, they do not necessarily draw wages or salary directly from the business in return for their work. However, their efforts are usually motivated by a desire to support the family enterprise, and they often receive benefits from the enterprise indirectly, for example through the resultant capital accumulation of the business.

number and nature of their jobs. Both these factors (interviewer prompting and more specific questioning) would be likely to reduce the incidence where respondents either overlook second jobs or were not sure about whether to count a second job. This difference in survey method may thus explain the difference between numbers of MJHers identified by the TUS compared with the census - as indicated by the higher comparative index in the shaded cells in Table 2 above.

It should be remembered that the margin for error is greater for a survey of 8,500 than it is for a complete national census, although this is unlikely to explain the observed difference completely (a sample size of 8,500 will result in a maximum sampling error of ±1.4% at the 99% confidence level; ±1.4% of the estimated value corresponds to ±0.2. That is to say, the TUS points to a national average MJH rate in the range 12.9% to 13.3% of the working population.

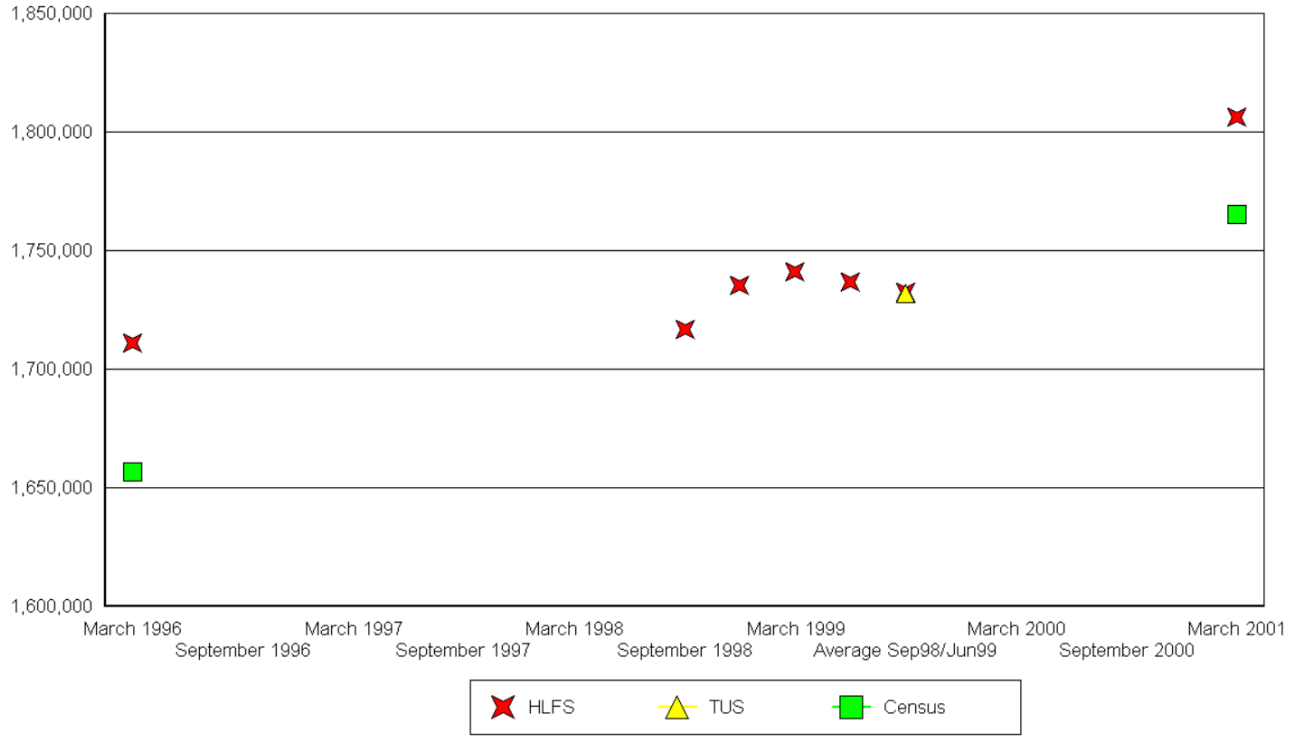
An additional check on this issue is to look at the results for 'total employed' which are derived from the two survey instruments. TUS results show ~5,000 more people working in total in 1998/99 than reported doing so in the 2001 census. However, the long-term series produced by the HLFS does not indicate a dip in total employment between 1998/99 and 2001; indeed quite the reverse, as shown in Table 3 below.

Table 3 Comparative data for total employed

	HLFS	TUS	Census
March 1996	1,711,000		1,656,914
September 1998	1,717,000		
December 1998	1,735,200		
March 1999	1,741,100		
June 1999	1,736,900		
Average Sept98/June99	1,732,550	1,732,152	
March 2001	1,806,300		1,765,268

Note that the HLFS data are for paid work only, while the census and TUS data include paid and unpaid work. Hence, one would expect the Census and TUS data to indicate higher levels of total employed, which does not appear to be the case in the comparisons shown in Table 3. Indeed, the results for the HLFS and the TUS over the period July 1998 to June 1999 are almost identical, which is not surprising given that both survey samples were based on the same sampling frame. The apparent lower figure for the 2001 census is explained by the net undercount in the census, which increased sharply in 2001. A graphical comparison of the data in Table 3 is presented in Figure 1.

Figure 1 MJH time series from different data sets 1996-2001



2.2 Multiple job holding by sex

The TUS provided the following estimates of multiple job holding by sex.

Table 4 Distribution of one-job, 2-job and 3-or-more job workers - by sex

	# One job only	% One job only	# 2 jobs	% 2 jobs	# 3+jobs	% 3+jobs
All female workers	641,860	84.7%	101,770	13.4%	14,476	1.9%
All male workers	864,072	88.7%	98,395	10.1%	11,578	1.2%

The comparison between TUS and census-based estimates has been analysed in two ways. Firstly, we ask what are the estimated MJH rates (%) amongst employed women and employed men. These are compared with data from the two most recent census.

	1996 census	98/99 TUS[6]	2001 census
MJH rate for women	11.5%	15.3%	10.7%
MJH rate for men	8.8%	11.3%	9.5%

The TUS estimate of the national MJH rate for women in 1998/99 is 33% higher than the census-based figure in 1996 and 43% higher than the census-based figure in 2001. The census-based longitudinal analysis of multiple job holding suggests that MJH rates for women peaked and then began to decline

[6] MJH rates for the TUS combine 2-job holders and 3+job holders.

gradually after 1996[7]. The corresponding differences for the national MJH rate for men are less pronounced; the TUS estimate of the national MJH rate for men in 1998/99 is 28% higher than the census-based figure in 1996 and 19% higher than the census-based figure in 2001. The census-based longitudinal analysis of multiple job holding suggests that MJH rates for men have continued to increase overall between 1996 and 2001[8].

Table 5 compares the relevant data from the 1996 and 2001 census with the estimates produced by Statistics NZ from the TUS sample. Both the census and the TUS record data on paid and unpaid work.

Table 5 Comparative data for total employed and MJHers - by sex

	1996 Census		1998/99 TUS		2001 Census	
	#	Index	#	Index	#	Index
women with one job only	666,274	1.00	641,860	0.96	733,752	1.10
women with two or more jobs	86,411	1.00	116,246	1.35	88,255	1.02
total women employed	752,685		758,106		822,007	
men with one job only	824,496	1.00	864,072	1.05	853,246	1.03
men with two or more jobs	79,763	1.00	109,973	1.38	90,021	1.13
total men employed	904,259		974,045		943,267	

The data for both women and men in Table 5 show that the source of difference between TUS and census-based estimates of MJH rates derives more from differences in the data on multiple jobs than differences in data on single jobs (see shaded cells in the Table). This points strongly to significant differences in people's response on multiple job holding when prompted with detailed questions on their whole range of work activities.

The second part of the analysis by sex asked of the working population that is employed in more than one job (i.e. out of all the MJHers), what proportion are women and what proportion are men? The comparison between TUS and census-based estimates shows that the TUS estimates appear to fit within the inter-censal trends, giving a degree of confidence that the TUS sample was indeed a good representative sample.

	1996 census	98/99 TUS	2001 census
%MJHers who are women	52.0%	51.4%	49.5%
%MJHers who are men	48.0%	48.6%	50.5%

7 This appears to be the overall national trend for MJH rates among women workers. However, there are segments of the female labour force (e.g. age bands, occupations, etc.) where MJH rates are still increasing and other segments where the decline has been more pronounced.

8 Although trends in MJH rates for men display a similar variability to those for women described in the previous footnote.

2.3 Multiple job holding by ethnicity

The TUS provided estimates of multiple job holding by ethnicity, as shown in Table 6.

Table 6 Distribution of one-job, 2-job and 3-or-more job workers - by ethnicity

	# One job only	% One job only	# 2 jobs	% 2 jobs	# 3+jobs	% 3+jobs
NZ Maori workers	171,926	89.7%	16,609	8.7%	2,992	1.6%
Pacific Island workers	48,045	93.1%	3,563	6.9%	-	-
Asian workers	54,310	88.8%	6,322	10.3%	532	0.9%
NZ European workers	1,264,066	86.3%	177,074	12.1%	23,538	1.6%

The same two types of analysis and comparison have been carried out for the ethnicity variable, as for comparing men and women in the previous section.

	1996 census	98/99 TUS	2001 census
MJH rate for NZ Maori	8.6%	10.2%	7.2%
MJH rate for Pacific Island	6.1%	6.9%	3.8%
MJH rate for Asian	6.4%	11.2%	6.5%
MJH rate for NZ European	10.6%	13.7%	11.1%

Table 7 summarises differences in MJH rates estimated from the TUS and the two most recent census, while Table 8 compares the relevant data from the 1996 and 2001 census with the estimates produced by Statistics NZ from the TUS sample. Both the census and the TUS record data on paid and unpaid work.

Table 7 Comparison of MJH rates between TUS and census - by ethnicity

	1998/99 TUS estimate compared to 1996 census estimate	1998/99 TUS estimate compared to 2001 census estimate
MJH rate for NZ Maori	+19%	+42%
MJH rate for Pacific Island	+13%	+82%
MJH rate for Asian	+75%	+72%
MJH rate for NZ European	+29%	+23%

Table 8 Comparative data for total employed and MJHers - by ethnicity

	1996 Census		1998/99 TUS		2001 Census	
	#	Index	#	Index	#	Index
NZ Maori with one job only	163,803	1.00	171,926	1.05	176,114	1.08
NZ Maori with two or more jobs	15,389	1.00	19,601	1.27	13,730	0.89
Total NZ Maori employed	179,192		191,527		189,844	
Pacific Islanders with one job only	56,888	1.00	48,045	0.84	69,972	1.23
Pacific Islanders with two or more jobs	3,679	1.00	3,563	0.97	2,766	0.75
Total Pacific Islanders employed	60,567		51,608		72,738	
Asian people with one job only	54,547	1.00	54,310	0.99	81,709	1.50
Asian people with two or more jobs	3,706	1.00	6,854	1.85	5,669	1.53
Total Asian people employed	58,253		61,164		87,378	
NZ European with one job only	1,192,146	1.00	1,264,066	1.06	1,236,263	1.04
NZ European with two or more jobs	141,726	1.00	200,612	1.42	154,232	1.09
Total NZ European employed	1,333,872		1,464,678		1,390,495	

The first thing to notice about the data disaggregated by ethnicity is the existence of some distinct differences in the responses from different ethnic groups. For example, the TUS data on the number of Pacific Islanders who have one job only appears exceptionally low and inconsistent with longer term trends (see cells with bolded borders). This may indicate that the the TUS survey sample significantly under-represented Pacific Islanders working in New Zealand. A similar observation can also be made about the TUS data on Asian people who have only one job[9]. The fact that these two ethnic groups appear so substantially under-represented in TUS responses on single jobs only may imply language difficulties and interpretations encountered in administering the TUS.

It is necessary to keep in mind that the sub-samples for all ethnicities except NZ European will have been much smaller, and the sampling errors likely to have been correspondingly larger.

For NZ Maori and NZ European, once again the data show that the source of difference between TUS and census-based estimates of MJH rates derives more from differences in the data on multiple jobs than differences in data on single jobs (see shaded cells).

The second part of the analysis and comparison - when carried out by ethnicity - shows that the TUS estimates appear to fit the inter-censal trends, bearing in mind that NZ Europeans are by far the largest ethnicity and therefore their proportion in the TUS is likely to be higher than in the census data.

%MJHers who are -	1996 census	98/99 TUS	2001 census
NZ Maori	9.3%	8.7%	7.7%
Pacific Islanders	2.2%	1.6%	1.6%
Asian	2.2%	3.0%	3.2%
NZ European	85.3%	88.7%	86.5%

[9] although Asian workers who were sampled in the TUS have obviously reported much higher levels of multiple job holding than was captured in the 1996 census.

The data sequence confirms the general distribution of MJHers amongst the major ethnic groupings in the workforce.

2.4 Multiple job holding by age

The TUS provided estimates of multiple job holding by age band, as shown in Table 9.

Table 9 Distribution of one-job, 2-job and 3-or-more job workers - by age band

	# One job only	% One job only	# 2 jobs	% 2 jobs	# 3+jobs	% 3+jobs
15-19 yr-old workers	109,137	84.1%	19,028	14.7%	1,502	1.2%
20-29 yr-old workers	308,902	89.3%	33,938	9.8%	3,087	0.9%
30-49 yr-old workers	759,092	86.1%	107,288	12.2%	15,299	1.7%
50-64 yr-old workers	295,208	87.7%	35,289	10.5%	6,166	1.8%
64+ yr-old workers	33,592	87.9%	4,622	12.1%	-	-

Due to the sample size in the TUS, a greater degree of age group aggregation limits the comparison between TUS and census estimates. Nevertheless, the first comparison - of MJH rates - reveals one particular outlier: 15-19 year olds.

	1996 census	98/99 TUS	2001 census
MJH rate for 15-19yr-olds	10.8%	15.8%	10.3%
MJH rate for 20-29yr-olds	8.6%	10.7%	7.5%
MJH rate for 30-49yr-olds	10.8%	13.9%	10.3%
MJH rate for 50-64yr-olds	9.4%	12.3%	11.5%
MJH rate for 65+yr-olds	10.6%	12.1%	12.4%

Table 10 Comparison of MJH rates between TUS and census - by age group

	1998/99 TUS estimate compared to 1996 census estimate	1998/99 TUS estimate compared to 2001 census estimate
MJH rate for 15-19 year olds	+46%	+53%
MJH rate for 20-29 year olds	+24%	+43%
MJH rate for 30-49 year olds	+29%	+35%
MJH rate for 50-64 year olds	+31%	+7%
MJH rate for 65+ year olds	+14%	-2%

The highest level of discrepancy appears for the 15-19 years olds, perhaps suggesting that this young age group are more concerned at census time not to reveal all income sources. At the same time, the TUS estimates may confirm what other census-based data in some sectors points to as a significant recent increase in multiple job holding by youth entering the labour market for the first time.

Table 11 compares the relevant data from the 1996 and 2001 census with the estimates produced by Statistics NZ from the TUS sample. Both the census and the TUS record data on paid and unpaid work.

The TUS estimates for workers with one job only appear reasonably consistent with the census data across the whole spectrum of age bands. The biggest differences between TUS estimates and census data for multiple job holders occur for 15-19 year olds, 20-29 year olds and 30-49 year olds, implying as previously that the TUS was more effective at eliciting such data because of its method of administration (see shaded cells in Table 11). Even for the 50-64 year olds and 65+year old age band, the TUS estimates show much greater differences with the 1996 census for multiple job holders than for single job holders.

Overall, the three data sets present a coherent picture of a progressively ageing working population. This is also the case for the second part of the comparison presented below:

%MJHers who are -	1996 census	98/99 TUS	2001 census
15-19yrs old	8.2%	9.1%	7.0%
20-29yrs old	19.7%	16.4%	14.1%
30-49yrs old	53.0%	54.2%	50.1%
50-64yrs old	16.6%	18.3%	25.3%
65+yrs old	2.5%	2.0%	3.6%

The TUS estimates indicate a very similar distribution of MJHers across the age spectrum.

Table 11 Comparative data for total employed and MJHers - by age

	1996 Census		1998/99 TUS		2001 Census	
	#	Index	#	Index	#	Index
15-19 year olds with one job only	112,462	1.00	109,137	0.97	107,911	0.96
15-19 year olds with two or more jobs	13,625	1.00	20,530	1.51	12,430	0.91
Total 15-19 year olds employed	126,087		129,667		120,341	
20-29 year olds with one job only	348,185	1.00	308,902	0.89	310,482	0.89
20-29 year olds with two or more jobs	32,797	1.00	37,025	1.13	25,080	0.76
Total 20-29 year olds employed	380,982		345,927		335,562	
30-49 year olds with one job only	730,313	1.00	759,092	1.04	775,575	1.06
30-49 year olds with two or more jobs	88,078	1.00	122,587	1.39	89,307	1.01
Total 30-49 year olds employed	818,391		881,679		864,882	
50-64 year olds with one job only	266,194	1.00	295,208	1.11	348,377	1.31
50-64 year olds with two or more jobs	27,661	1.00	41,455	1.50	45,107	1.63
Total 50-64 year olds employed	293,855		336,663		393,484	
65+ year olds with one job only	33,607	1.00	33,592	1.00	44,699	1.33
65+ year olds with two or more jobs	4,002	1.00	4,622	1.16	6,347	1.59
Total 65+ year olds employed	37,609		38,214		51,046	

2.5 Multiple job holding by employment status

The TUS provided estimates of multiple job holding by employment status (first job), as shown in Table 12.

Table 12 Distribution of one-job, 2-job and 3-or-more job workers - by employment status (first job)

	# One job only	% One job only	# 2 jobs	% 2 jobs	# 3+jobs	% 3+jobs
wage/salary workers	1,214,973	91.7%	100,006	7.5%	9,830	0.7%
employers	128,552	93.9%	6,774	5.0%	1,516	1.1%
self-employed	158,022	68.0%	64,158	27.6%	10,215	4.4%
unpaid work	3,143	8.6%	28,972	79.4%	4,369	12.0%

The census identifies the employment status of all persons in their stated job.

	1996 census[10] (All workers 1st)	98/99 TUS (All workers 1st)	2001 census (All workers 1st)
w/s earner	74.4%	76.6%	75.1%
employer	7.5%	7.9%	7.5%
self-employed	11.4%	13.4%	12.3%
unpaid work	3.3%	2.1%	2.3%

There appears to be reasonable agreement between census and the TUS estimates on the proportions of multiple job holders in each category of employment.

The TUS identifies the employment status associated with each job in the case of MJHers.

	TUS - job 1	TUS - job 2	TUS - job 3
w/s earner	76.6%	48.6%	37.9%
employer	7.9%	3.7%	5.8%
self-employed	13.4%	32.9%	39.4%
unpaid work	2.1%	14.8%	16.8%

The TUS indicates that (when investigated in depth) people are more likely to record their unpaid work as a second or third job rather than a first or main job. The TUS also indicates that wage and salary earners are the largest grouping of workers for 1st and 2nd jobs, but by the 3rd job self-employment is the dominant employment status

Next we ask of the TUS data what is the MJH rate (%) amongst people in different categories of employment status (first job). This is compared with similar estimates from the census:

	1996 census	98/99 TUS	2001 census
MJH rate for w/s workers	9.5%	8.3%	8.2%
MJH rate for employers	9.2%	6.1%	12.9%
MJH rate for self-employed	13.1%	32.0%	17.2%
MJH rate for unpaid workers	16.7%	91.4%	33.4%

[10] Figures do not sum to 100%; the difference is made up of people whose employment status was undefined.

The discrepancies above between TUS and census estimates are very substantial for people who are self-employed or unpaid in their nominated first job. This might imply that the under-reporting or mis-reporting of multiple job holding that is very likely to occur in the census may be most pronounced for these categories of workers. Unlike the demographic variables for sex and age (and to a lesser extent ethnicity), responses to the question on employment status, as it relates to the 'main' job, are more open to varied and individualistic interpretation.

To give an idea of the numerical significance of the differences between census and TUS: if we apply the TUS MJHrates to the census workforce for the years 1996 and 2001, then the census national MJHrate would have been 13.3% in 1996 and 12.7% in 2001. Since these are very similar to the national MJH rate estimated from the TUS at the midpoint of the 1996-2001 inter-censal period, the apparently large discrepancies between MJHrate estimates for self-employed and unpaid workers in the census and TUS are likely to reflect a re-distribution between categories[11] and not an overall disagreement. This finding adds weight to the conclusions drawn in previous analyses[12] about significant undercounting of multiple job holding in the census, and suggests that the under counting may apply particularly to people who are self employed or in unpaid work.

2.6 Multiple job holding by occupation in the first job

Due to the sample size in the TUS, a greater degree of occupational group aggregation limits the comparison between TUS and census estimates to 1-digit and 2-digit occupational groupings.

The TUS provided the following estimates of multiple job holding by occupation (Level 1) as shown in Table 12.

[11] i.e. the TUS estimates for MJH rates are lower for wage and salary earners and employers but higher for self-employed and unpaid workers. When the composition of the total workforce by employment status is taken into account (i.e. there are many more wage and salary earners than workers in the other categories), the differences compensate each other.

[12] See original statistical profiles in Baines and Newell (2003a) based on 2001 census data.

Table 12 Distribution of one-job, 2-job and 3-or-more job workers - by occupation (Level 1)

	# One job only	% One job only	# 2 jobs	% 2 jobs	# 3+jobs	% 3+jobs
Legislators, Administrators and Managers	214,675	90.9%	16,632	7.0%	4,961	2.1%
Professionals	215,144	90.9%	19,458	8.2%	2,131	0.9%
Technicians and Associate Professionals	160,162	79.8%	36,825	18.3%	3,863	1.9%
Clerks	182,283	88.8%	20,828	10.1%	2,273	1.1%
Service and Sales Workers	224,134	86.8%	29,658	11.5%	4,354	1.7%
Agriculture and Fishery Workers	140,054	77.9%	36,159	20.1%	3,670	2.0%
Trades Workers	150,851	95.0%	6,994	4.4%	1,025	0.6%
Plant and Machine Operators and Assemblers	124,784	93.3%	7,948	5.9%	1,006	0.8%
Labourers and Related Elementary Service Workers	88,601	76.6%	24,656	21.3%	2,379	2.1%

Table 13 compares estimates of MJH rates by occupation of the stated first job.

Table 13 MJH rates - by occupation (Level 1)

	MJH rate 1996 census	MJH rate 1998/99 TUS	MJH rate 2001 census
Legislators, Administrators and Managers	8.6%	9.1%	10.0%
Professionals	12.9%	9.1%	13.1%
Technicians and Associate Professionals	11.4%	20.3%	11.3%
Clerks	10.3%	11.2%	9.8%
Service and Sales Workers	10.9%	13.2%	8.8%
Agriculture and Fishery Workers	12.4%	22.1%	17.5%
Trades Workers	6.4%	5.0%	6.6%
Plant and Machine Operators and Assemblers	6.7%	6.7%	6.4%
Labourers and Related Elementary Service Workers	9.6%	23.4%	7.6%

Table 13 shows substantial discrepancies between the TUS estimates and the census data for MJH rates in several occupational groups - technicians and associate professionals, service and sales workers, agriculture and fishery workers, and labourers and related elementary service workers show substantially higher MJH rates in the TUS (see shaded cells), while professionals and trades workers show substantially lower MJH rates in the TUS (see cells with bolded borders). Table 14 gives comparative data for total employment, single job holding and multiple job holding.

Table 14 Comparative data for total employed and MJHers - by occupation (Level 1)

	1996 Census		1998/99 TUS		2001 Census	
	#	Index	#	Index	#	Index
Legislators, Administrators and Managers with one job only	175,501	1.00	214,675	1.22	198,937	1.13
Legislators, Administrators and Managers with two or more jobs	16,505	1.00	21,593	1.31	22,192	1.34
Legislators, Administrators and Managers - total employed	192,006		236,268		221,129	
Professionals with one job only	176,845	1.00	215,144	1.22	217,524	1.23
Professionals with two or more jobs	26,259	1.00	21,589	0.82	32,650	1.24
Professionals - total employed	203,104		236,733		250,174	
Technicians and Associate Professionals with one job only	147,502	1.00	160,162	1.09	161,097	1.09
Technicians and Associate Professionals with two or more jobs	19,056	1.00	40,688	2.14	20,604	1.08
Technicians and Associate Professionals - total employed	166,558		200,850		181,701	
Clerks with one job only	201,982	1.00	182,283	0.90	208,528	1.03
Clerks with two or more jobs	23,256	1.00	23,101	0.99	22,566	0.97
Clerks - total employed	225,238		205,384		231,084	
Service and Sales Workers with one job only	204,634	1.00	224,134	1.10	226,041	1.10
Service and Sales Workers with two or more jobs	25,076	1.00	34,012	1.36	21,796	0.87
Service and Sales Workers - total employed	229,710		258, 146		247,737	
Agriculture and Fishery Workers with one job only	136,724	1.00	140,054	1.02	115,910	0.85
Agriculture and Fishery Workers with two or more jobs	19,337	1.00	39,829	2.06	24,589	1.27
Agriculture and Fishery Workers - total employed	156,061		179,883		140,499	
Trades Workers with one job only	141,046	1.00	150,851	1.07	138,669	0.98
Trades Workers with two or more jobs	9,693	1.00	8,019	0.83	9,808	1.01
Trades Workers - total employed	150,739		158,870		148,477	
Plant and Machine Operators and Assemblers with one job only	129,183	1.00	124,784	0.97	135,968	1.05
Plant and Machine Operators and Assemblers with two or more jobs	9,232	1.00	8,954	0.97	9,278	1.00
Plant and Machine Operators and Assemblers - total employed	138,415		133,738		145,236	
Labourers and Related Elementary Service Workers with one job only	102,209	1.00	88,601	0.87	95,028	0.93
Labourers and Related Elementary Service Workers with two or more jobs	10,851	1.00	27,035	2.49	7,824	0.72
Labourers and Related Elementary Service Workers - total employed	113,060		115,636		102,852	

As was previously the case, the discrepancies in MJH rates appear to arise much more from estimates of multiple job holders than single job holders, the data for which tend to show much greater agreement.

This raises an interesting question about why professionals and trades workers might under-report MJHing in the TUS. If it was a case of of un-representative sampling, then we would expect the total employed and number of single job holders in these categories of occupation to be under reported as well, which is not the case. Alternatively, given that the distribution of MJHers between occupational types is very different for the TUS than for the census, it could suggest a level of mis-coding when the number of occupational types is small and therefore occupational groupings are more generalised. Or, in another possible explanation, in the TUS respondents may make a different assessment of what their 1st or main job is after prompting by the interviewer, or in response to the more detailed questioning about the various jobs. It should be remembered that the census determines a respondent's 1st job by the number of hours worked rather than any by respondent preference Thus this latter explanation appears plausible when one considers the comparative results by employment status reported earlier in this paper. In effect, the different style of survey instrument could give rise to different responses simply because people on reflection re-evaluate what is their first or main job and may not axiomatically correlate main job with most hours worked[13] (see further discussion below about the extent to which people pursue different occupations in their different jobs). This explanation would appear to be confirmed by the data in Table 15 which compares the distribution of MJHers in New Zealand across each occupational type (Level 1 classification) as reported in the TUS and the census - and grouped according to the occupation reported for the first or main job. The TUS shows a distinctly different distribution of MJHers by occupation from either census. It seems clear that people responding to the TUS nominated a different job (and therefore in many cases a different occupation) as their first or main job from the one which was inferred from their census response.

Table 15 Distribution of MJHers across occupational types - Level 1 occupational classification

	1996 census	1998/99 TUS	2001 census
Legislators, Administrators and Managers	10%	10%	13%
Professionals	16%	10%	19%
Technicians and Associate Professionals	12%	18%	12%
Clerks	15%	10%	13%
Service and Sales Workers	16%	15%	13%
Agriculture and Fishery Workers	12%	18%	14%
Trades Workers	6%	4%	6%
Plant and Machine Operators and Assemblers	6%	4%	5%
Labourers and Related Elementary Service Workers	7%	12%	5%
Total for All occupations	100%	100%	100%

[13] It is conceivable, for example, that people may nominate their first job as the job which earners them the most income, or the job which has the strongest association with their personal identity (e.g. a performing artist may work longer hours in another job simply to make their performance job viable, but still nominate their performance job as their 'main' job).

The analysis presented in this section is repeated in Appendix 1 using Level 2 classification of occupations - i.e. slightly more detail.

2.7 Multiple occupations for multiple job holders

People who choose to have more than one job do not necessarily pursue the same occupation in both jobs. The census provides no information on the occupation of the second or third jobs that MJHers work in; indeed, the census provides no information about the second or third jobs apart from the fact that some people do have more than one job.

In other activities of this research programme (Objective 2), more in-depth interviews have revealed information which suggests that simple assumptions about which job people think of as their first job or main job may not be valid. In the surveys of farming people, for example, a surprising proportion of respondents did not record farming as their first or main job. As has been discussed in the previous section of this report, there is reason to suspect that census responses related to which job is designated the first or main job (i.e responses on occupation or employment status, for example[14]) are different from responses to similar questions in the TUS where the latter was more probing in its enquiry.

For these reasons, the TUS is particularly helpful in enabling some analysis of the occupational profile of MJHers. The TUS asked for the occupation of each job separately, whether or not the occupation was the same or different. Table 16 presents the TUS data for the first and second jobs of MJHers according to the nine Level 1 classification[15]. Table 17 translates Table 16 into percentages, where the diagonal values (top left to bottom right - see shaded cells) indicate the percentages of workers who pursued the same occupation in both their first and second jobs. Note that it is the rows which sum to 100%, since the percentages are expressed on the basis of the occupation that people pursued in their first job.

It can be seen from Table 17 that there is a very high level of cross-occupational multiple job holding, which implies that MJHers are applying somewhat different skill sets in their various jobs. In no occupational type is there a majority of MJHers who work in the same occupation for their first and second jobs (i.e. none of the cells on the diagonal have values of 50% or greater). Nevertheless, the occupation of the first job is most commonly the dominant occupation of the second job; in only two of the nine occupations (agriculture and fishery workers, and plant and machine operators) do alternative occupations dominate. In the case of agriculture and fishery workers, the highest proportion of second job occupations (21%) are in Class 1 (legislators, administrators and managers) and 16% are in Class 3 (technicians and associate professionals). In the case of plant and machine operators, the highest proportion of second job occupations (34%) are in Class 6 (agriculture and fishery workers) while a further 29% are in Class 3 (technicians and associate professionals).

This degree of cross-occupational work may point to a growing interest amongst working individuals in enhancing their human capital by developing the skills necessary to work in more than one occupation, as a hedge against the uncertainties of economic and technical change. It is also a phenomenon which appears to have implications for training in relation to skills development.

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[14] This would also affect responses on hours worked 'in your main job'.

[15] We acknowledge that Statistics New Zealand cautions users of these data that cells with relatively small numbers (generally <1,000) are 'unreliable' because the population estimates are based on relatively small numbers of actual responses. Nevertheless, for our comparative purposes, indicate useful 'order of magnitude' comparisons.

Table 16

Occupation of the first job	Occupation of the second job: Legislators, Administrators and Managers	Professionals	Technicians and Associate Professionals	Clerks	Service and Sales Workers	Agriculture and Fishery Workers	Trades Workers	Plant and Machine Operators, Assemblers	Labourers, Related Elementary Service Workers	Not elsewhere included
Legislators, Administrators and Managers	5,282	5,290	3,780	1,483	1,281	3,964	917	231	2,581	1,809
Professionals	3,770	10,939	8,758	1,818	3,869	5,749	0	751	620	2,193
Technicians and Associate Professionals	4,118	517	10,953	3,432	4,012	3,707	183	1,944	964	235
Clerks	1,223	1,927	4,142	7,187	5,143	3,880	251	278	4,622	722
Service and Sales Workers	1,186	623	3,117	3,493	13,283	6,265	787	114	5,494	908
Agriculture and Fishery Workers	3,499	1,056	2,702	1,732	2,451	2,950	300	1,365	942	0
Trades Workers	190	0	745	0	1,041	3,776	5,269	871	1,976	789
Plant and Machine Operators and Assemblers	283	184	4,220	1,077	232	5,040	312	1,741	1,708	0
Labourers and Related Elementary Service Workers	349	594	1,301	1,102	1,546	3,948	0	1,116	7,791	661
Not elsewhere included	0	283	0	174	0	270	0	0	0	252

Table 17

Occupation of the first job	Occupation of the second job: Legislators, Administrators and Managers	Professionals	Technicians and Associate Professionals	Clerks	Service and Sales Workers	Agriculture and Fishery Workers	Trades Workers	Plant and Machine Operators, Assemblers	Labourers, Related Elementary Service Workers	Not elsewhere included
Legislators, Administrators and Managers	19.8%	19.9%	14.2%	5.6%	4.8%	14.9%	3.4%	0.9%	9.7%	6.8%
Professionals	9.8%	28.4%	22.28%	4.7%	10.1%	14.9%	0.0%	2.0%	1.6%	5.7%
Technicians and Associate Professionals	13.7%	1.7%	36.4%	11.4%	13.3%	12.3%	0.6%	6.5%	3.2%	0.8%
Clerks	4.2%	6.6%	14.1%	24.5%	17.5%	13.2%	0.9%	0.9%	15.7%	2.5%
Service and Sales Workers	3.4%	1.8%	8.8%	9.9%	37.7%	17.8%	2.2%	0.3%	15.6%	2.6%
Agriculture and Fishery Workers	20.6%	6.2%	15.9%	10.2%	14.4%	17.4%	1.8%	8.0%	5.5%	0.0%
Trades Workers	1.3%	0.0%	5.1%	0.0%	7.1%	25.8%	35.9%	5.9%	13.5%	5.4%
Plant and Machine Operators and Assemblers	1.9%	1.2%	28.5%	7.3%	1.6%	34.1%	2.1%	11.8%	11.5%	0.0%
Labourers and Related Elementary Service Workers	1.9%	3.2%	7.1%	6.0%	8.4%	21.4%	0.0%	6.1%	42.3%	3.6%
Not elsewhere included	0.0%	28.9%	0.0%	17.8%	0.0%	27.6%	0.0%	0.0%	0.0%	25.7%

The same kind of analysis has been carried out disaggregating the occupation of the first job into 23 Level 2 classifications. This presented in Appendix 2.

3 DISCUSSION

The analysis reported here identifies some important apparent discrepancies between the TUS and census data sets, but also some degree of reinforcement to do with longitudinal trends.

3.1 Data discrepancies

Overall, the TUS results in an estimated national average MJH rate which is 30% higher than the last two census results indicate. The discrepancies are most pronounced for women, NZ Maori or Asian workers, workers who are aged less than 50 particularly 15-19 year olds, the self-employed and unpaid workers.

Greatest variability in discrepancies arises in variables where there is scope for respondents to give different responses to different survey instruments. Responses on sex, ethnicity and age should not differ at all between a self-administered census and an interviewer-administered sample survey. However, responses concerning judgements about which of several jobs might be 'the main job' or 'the first job' could be very different between these two kinds of instruments. It is such differences in response that probably underlie the differences in resulting estimates of specific MJH rates.

Enquiries to Statistics NZ indicate that the sampling frame for the TUS was the same sampling frame used for the HLFS as it was carried out more than two years after the 1996 census.

3.2 Data reinforcement

The TUS estimates appear to fit the inter-censal trends for the proportions of MJHers when analysed by sex, ethnicity and age bands.

3.3 The case for adapting existing survey instruments

The insights gained from a more searching investigation of labour market detail and from the more detailed analysis made possible as a result of the TUS make a strong case for adapting existing survey instruments or for updating the TUS.

In comparison to the census of population and dwellings, two features of the TUS stand out regarding the information on labour market behaviour. The first is the detailed content of the TUS questionnaire, which explicitly went into considerable detail about the nature of each job, if the respondent held more than one job at the time of the survey. In other words, the TUS not only established the existence of a second or third job (or more if applicable), but also gathered details such as employment status and occupation for each job separately.

The second feature, which is very likely to make a difference, is the mode of survey implementation. The census is self-administered, with no possibility for prompting by an interviewer, while the TUS was interviewer-administered.

Taken together, these two features are likely to result in greater accuracy, at least at the aggregate level of results[16] - accuracy in terms of different responses when there is more opportunity for informed reflection (i.e. with an interviewer prompting) and when the survey instrument requires more detail on each job and therefore invites more careful consideration. It would seem that the different responses may be of two kinds - firstly, more people acknowledging and reporting that they do in fact have more than one job, and secondly, people then re-evaluating which job is their main job, which could influence their responses to questions about the occupation and employment status of each job.

Invariably any proposition to adapt existing statistical survey instruments has to contend with several major issues - namely the desire to preserve continuity and comparability of surveys in a series, and the need to consider respondent burden in order to ensure as high a response rate as possible[17]. These are very real issues, but so are the issues of data relevance and accuracy. When comparing the census and TUS, it is worth remembering that the census does implicitly invite respondents to think about whether or not they had more than one job, because it asks them a series of questions[18] related just to one job; the job that they "worked the most hours in". It asks no questions in relation to others jobs, having invited respondents to reflect on whether they had more than one. In contrast, the TUS specifically repeats the same set of questions for all jobs, thereby providing a much richer picture of each individual's work circumstances.

When considering the proposition to adapt the census questionnaire, issues of comparability, continuity and respondent burden must be set against the consideration of progressive change in the focus of census enquiry which cumulatively renders existing data frames unsatisfactory, at least for a particular section of the census. At the latest census, it is apparent that the existing data frame on work-related questions is inappropriate for at least one-in-ten respondents, nationally[19]; and in some occupational groups it may be inappropriate for one-in-four, or even for one-in-three. The TUS suggests that the census data frame on work-related questions is inappropriate for nearly one-in-six respondents nationally.

The proposition being advanced here is that existing questions about the 'first job' should be repeated for any subsequent job; not totally new questions to incorporate, but rather the repeat of questions already contained in the census questionnaire. It might even be argued that, by asking people to answer the work-related questions just in relation to the so-called 'first' job, the census does in fact already require respondents to distinguish between several jobs, if indeed they hold several jobs simultaneously; it simply doesn't require them to provide the answers for these other jobs, thereby 'losing' information. Alternatively, the TUS at least needs to be repeated at regular intervals.

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16 Obviously the much smaller survey sample in the TUS does not permit accurate disaggregation of data in the same way as the census. However, the base data set is likely to provide a more accurate reflection of labour market phenomena.

17 The response rate may refer to the questionnaire as a whole, or to the completeness of responses within the questionnaire, with some questions sometimes being left unanswered.

18 For example, questions 29-34 in the Individual Form of the 2001 census.

19 Other researchers have made similar arguments in relation to other aspects of work-related questioning in the census, such as the lack of acknowledgement of casual work or temporary work.

3.4 Conclusions

In conclusion, the analysis reported here identifies some important apparent discrepancies between the TUS and census data sets, but also some degree of reinforcement to do with longitudinal trends. The analysis raises issues about the need to adapt the work-related sections of existing instruments for gathering national statistics, such as the census and the HLFS in order to reflect better the changing nature of labour markets in New Zealand.

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APPENDIX A:

Additional analysis of multiple job holding by occupation in the first job - Level 2 classification of occupations

Table A1 Distribution of one-job, 2-job and 3-or-more job workers - by occupation (Level 2)

	# One job only	% One job only	# 2 jobs	% 2 jobs	# 3+jobs	% 3+jobs
Legislators and Administrators	4,357	80.8	1,038	19.2	0	0.0
Corporate Managers	210,319	91.1	15,594	6.8	4,961	2.1
Physical, Mathematical and Engineering Science Professionals	39,425	95.9	1,686	4.1	0	0.0
Life Science and Health Professionals	53,247	95.9	1,887	3.4	387	0.7
Teaching Professionals	63,892	87.4	8,103	11.1	1,141	1.6
Other Professionals	58,581	87.5	7,781	11.6	604	0.9
Physical Science and Engineering Associate Professionals	38,650	87.4	5,592	12.6	0	0.0
Life Science and Health Associate Professionals	11,584	78.1	3,257	21.9	0	0.0
Other Associate Professionals	109,929	77.5	27,975	19.7	3,863	2.7
Office Clerks	128,255	88.6	14,492	10.0	2,014	1.4
Customer Services Clerks	54,028	89.1	6,335	10.4	260	0.4
Personal and Protective Services Workers	126,194	84.5	20,461	13.7	2,737	1.8
Salespersons, Demonstrators and Models	97,941	90.1	9,196	8.5	1,618	1.5
Market Oriented Agricultural and Fishery Workers	140,054	77.9	36,159	20.1	3,670	2.0
Building Trades Workers	68,748	96.3	2,314	3.2	354	0.5
Metal and Machinery Trades Workers	48,732	94.6	2,794	5.4	0	0.0
Precision Trades Workers	11,231	97.2	(351)	-3.0	671	5.8
Other Craft and Related Trades Workers	22,140	90.8	2,236	9.2	0	0.0
Industrial Plant Operators	13,911	95.4	668	4.6	0	0.0
Stationary Machine Operators and Assemblers	59,745	96.3	1,962	3.2	338	0.5
Drivers and Mobile Machinery Operators	46,549	93.0	2,823	5.6	668	1.3
Building and Related Workers	4,579	64.7	2,495	35.3	0	0.0
Labourers and Related Elementary Service Workers	88,601	76.6	24,656	21.3	2,379	2.1

Table A2 MJH rates - by occupation (Level 2)

2-digit occupational group	MJH rate 1996 census	MJH rate 1998/99 TUS	MJH rate 2001 census
Legislators and Administrators	16.0 %	19.2 %	18.1 %
Corporate Managers	8.5 %	8.9 %	9.9 %
Physical, Mathematical and Engineering Science Professionals	8.4 %	4.1 %	10.0 %
Life Science and Health Professionals	14.2 %	4.1 %	14.5 %
Teaching Professionals	14.9 %	12.6 %	14.2 %
Other Professionals	12.1 %	12.5 %	12.7 %
Physical Science and Engineering Associate Professionals	9.8 %	12.6 %	10.2 %
Life Science and Health Associate Professionals	13.0 %	21.9 %	12.2 %
Other Associate Professionals	11.9 %	22.5 %	11.6 %
Office Clerks	10.6 %	11.4 %	10.5 %
Customer Services Clerks	9.5 %	10.9 %	7.8 %
Personal and Protective Services Workers	11.5 %	15.5 %	9.0 %
Salespersons, Demonstrators and Models	10.2 %	9.9 %	8.5 %
Market Oriented Agricultural and Fishery Workers	12.4 %	22.1 %	17.5 %
Building Trades Workers	6.9 %	3.7 %	7.1 %
Metal and Machinery Trades Workers	5.8 %	5.4 %	6.0 %
Precision Trades Workers	6.3 %	2.8 %	6.2 %
Other Craft and Related Trades Workers	6.3 %	9.2 %	6.2 %
Industrial Plant Operators	6.3 %	4.6 %	6.3 %
Stationary Machine Operators and Assemblers	6.4 %	3.7 %	5.6 %
Drivers and Mobile Machinery Operators	7.3 %	7.0 %	7.6 %
Building and Related Workers	6.0 %	35.3 %	5.3 %
Labourers and Related Elementary Service Workers	9.6 %	23.4 %	7.6 %

Table A3 Comparative data for total employed and MJHers - by occupation (Level 2)

	1996 Census		TUS		Census01	
	#	Index	#	Index	#	Index
Legislators and Administrators, with one job only	2,515	1.00	4,357	1.73	2,597	1.03
Legislators and Administrators, with two or more jobs	479	1.00	1,038	2.17	573	1.20
Legislators and Administrators, total employed	2,994		5,395		3,170	
Corporate Managers, with one job only	172,986	1.00	210,319	1.22	196,341	1.14
Corporate Managers, with two or more jobs	16,026	1.00	20,555	1.28	21,618	1.35
Corporate Managers, total employed	189,012		230,874		217,959	
Physical, Mathematical and Engineering Science Professionals, with one job only	29,041	1.00	39,425	1.36	40,027	1.38
Physical, Mathematical and Engineering Science Professionals, with two or more jobs	2,664	1.00	1,686	0.63	4,443	1.67
Physical, Mathematical and Engineering Science Professionals, total employed	31,705		41,111		44,470	
Life Science and Health Professionals, with one job only	39,847	1.00	53,247	1.34	44,868	1.13
Life Science and Health Professionals, with two or more jobs	6,575	1.00	2,274	0.35	7,582	1.15
Life Science and Health Professionals, total employed	46,422		55,521		52,450	
Teaching Professionals, with one job only	57,031	1.00	63,892	1.12	66,965	1.17
Teaching Professionals, with two or more jobs	9,997	1.00	9,244	0.92	11,077	1.11
Teaching Professionals, total employed	67,028		73,136		78,042	
Other Professionals, with one job only	50,926	1.00	58,581	1.15	65,665	1.29
Other Professionals, with two or more jobs	7,023	1.00	8,385	1.19	9,548	1.36
Other Professionals, total employed	57,949		66,966		75,213	
Physical Science and Engineering Associate Professionals, with one job only	39,752	1.00	38,650	0.97	39,196	0.99
Physical Science and Engineering Associate Professionals, with two or more jobs	4,337	1.00	5,592	1.29	4,464	1.03
Physical Science and Engineering Associate Professionals, total employed	44,089		44,242		43,660	
Life Science and Health Associate Professionals, with one job only	14,204	1.00	11,584	0.82	15,618	1.10

	1996 Census		TUS		Census01	
	#	Index	#	Index	#	Index
Life Science and Health Associate Professionals, with two or more jobs	2,118	1.00	3,257	1.54	2,180	1.03
Life Science and Health Associate Professionals, total employed	16,322		14,841		17,798	
Other Associate Professionals, with one job only	93,546	1.00	109,929	1.18	106,283	1.14
Other Associate Professionals, with two or more jobs	12,600	1.00	31,838	2.53	13,959	1.11
Other Associate Professionals, total employed	106,146		141,767		120,242	
Office Clerks, with one job only	145,097	1.00	128,255	0.88	150,231	1.04
Office Clerks, with two or more jobs	17,255	1.00	16,506	0.96	17,654	1.02
Office Clerks, total employed	162,352		144,761		167,885	
Customer Services Clerks, with one job only	56,885	1.00	54,028	0.95	58,297	1.02
Customer Services Clerks, with two or more jobs	6,002	1.00	6,595	1.10	4,912	0.82
Customer Services Clerks, total employed	62,887		60,623		63,209	
Personal and Protective Services Workers, with one job only	117,354	1.00	126,194	1.08	134,818	1.15
Personal and Protective Services Workers, with two or more jobs	15,194	1.00	23,198	1.53	13,273	0.87
Personal and Protective Services Workers, total employed	132,548		149,392		148,091	
Salespersons, Demonstrators and Models, with one job only	87,279	1.00	97,941	1.12	91,223	1.05
Salespersons, Demonstrators and Models, with two or more jobs	9,882	1.00	10,814	1.09	8,523	0.86
Salespersons, Demonstrators and Models, total employed	97,161		108,755		99,746	
Market Oriented Agricultural and Fishery Workers, with one job only	136,724	1.00	140,054	1.02	115,910	0.85
Market Oriented Agricultural and Fishery Workers, with two or more jobs	19,337	1.00	39,829	2.06	24,589	1.27
Market Oriented Agricultural and Fishery Workers, total employed	156,061		179,883		140,499	
Building Trades Workers, with one job only	65,230	1.00	68,748	1.05	67,332	1.03
Building Trades Workers, with two or more jobs	4,862	1.00	2,668	0.55	5,166	1.06
Building Trades Workers, total employed	70,092		71,416		72,498	

	1996 Census		TUS		Census01	
	#	Index	#	Index	#	Index
Metal and Machinery Trades Workers, with one job only	45,208	1.00	48,732	1.08	43,488	0.96
Metal and Machinery Trades Workers, with two or more jobs	2,758	1.00	2,794	1.01	2,790	1.01
Metal and Machinery Trades Workers, total employed	47,966		51,526		46,278	
Precision Trades Workers, with one job only	11,378	1.00	11,231	0.99	10,109	0.89
Precision Trades Workers, with two or more jobs	771	1.00	320	0.41	671	0.87
Precision Trades Workers, total employed	12,149		11,551		10,780	
Other Craft and Related Trades Workers, with one job only	19,230	1.00	22,140	1.15	17,740	0.92
Other Craft and Related Trades Workers, with two or more jobs	1,301	1.00	2,236	1.72	1,180	0.91
Other Craft and Related Trades Workers, total employed	20,531		24,376		18,920	
Industrial Plant Operators, with one job only	14,255	1.00	13,911	0.98	13,251	0.93
Industrial Plant Operators, with two or more jobs	966	1.00	668	0.69	886	0.92
Industrial Plant Operators, total employed	15,221		14,579		14,137	
Stationary Machine Operators and Assemblers, with one job only	64,712	1.00	59,745	0.92	67,921	1.05
Stationary Machine Operators and Assemblers, with two or more jobs	4,398	1.00	2,300	0.52	4,047	0.92
Stationary Machine Operators and Assemblers, total employed	69,110		62,045		71,968	
Drivers and Mobile Machinery Operators, with one job only	44,065	1.00	46,549	1.06	47,670	1.08
Drivers and Mobile Machinery Operators, with two or more jobs	3,475	1.00	3,491	1.00	3,943	1.13
Drivers and Mobile Machinery Operators, total employed	47,540		50,040		51,613	
Building and Related Workers, with one job only	6,151	1.00	4,579	0.74	7,125	1.16
Building and Related Workers, with two or more jobs	393	1.00	2,495	6.35	402	1.02
Building and Related Workers, total employed	6,544		7,074		7,527	
Labourers and Related Elementary Service Workers, with one job only	102,209	1.00	88,601	0.87	95,028	0.93
Labourers and Related Elementary Service Workers, with two or more jobs	10,851	1.00	27,035	2.49	7,824	0.72

	1996 Census		TUS		Census01	
	#	Index	#	Index	#	Index
Labourers and Related Elementary Service Workers, total employed	113,060		115,636		102,852	

APPENDIX B:

Analysis of cross-occupational multiple job holding, disaggregating the occupations of the nominated first job into 23 Level 2 classifications.

	Occupation of the second job									
Occupation of the first job	**Legislators, Administrators and Managers**	**Professionals**	**Technicians and Associate Professionals**	**Clerks**	**Service and Sales**	**Agriculture and Fishery Workers**	**Trades Workers**	**Plant and Machine Operators, Assemblers**	**Labourers, Related Elementary Service Workers**	**Not elsewhere included**
Legislators and Administrators	0	731	0	0	0	0	0	0	0	0
Corporate Managers	5,282	4,559	3,780	1,483	1,281	3,964	917	231	2,581	1,809
Physical, Mathematical and Engineering Science Professionals	411	992	1,997	0	619	204	0	0	0	0
Life Science and Health Professionals	980	1,759	2,894	762	973	2,443	0	466	620	1,427
Teaching Professionals	975	3,675	3,575	407	1,955	1,924	0	285	0	357
Other Professionals	1,404	4,513	293	649	323	1,178	0	0	0	409
Physical Science and Engineering Associate Professionals	714	0	1,854	990	179	212	183	656	0	0
Life Science and Health Associate Professionals	599	0	358	205	927	558	0	0	0	235
Other Associate Professionals	2,805	517	8,741	2,237	2,906	2,936	0	1,288	964	0
Office Clerks	0	1,414	3,384	5,682	1,662	3,301	251	278	2,183	461
Customer Services Clerks	1,223	513	758	1,504	3,481	579	0	0	2,439	261
Personal and Protective Services Workers	383	342	2,200	1,885	8,847	3,567	787	114	3,963	603
Salespersons, Demonstrators and Models	803	281	917	1,609	4,436	2,698	0	0	1,532	305
Market Oriented Agricultural and Fishery Workers	3,499	1,056	2,702	1,732	2,451	2,950	300	1,365	942	0
Building Trades Workers	0	0	648	0	218	1,451	1,522	0	1,068	789

Occupation of the first job	Occupation of the second job									
	Legislators, Administrators and Managers	**Professionals**	**Technicians and Associate Professionals**	**Clerks**	**Service and Sales**	**Agriculture and Fishery Workers**	**Trades Workers**	**Plant and Machine Operators, Assemblers**	**Labourers, Related Elementary Service Workers**	**Not elsewhere included**
Metal and Machinery Trades Workers	0	0	0	0	304	922	2,360	201	473	0
Precision Trades Workers	0	0	0	0	519	377	0	671	0	0
Other Craft and Related Trades Workers	190	0	97	0	0	1,027	1,387	0	435	0
Industrial Plant Operators	0	0	0	0	0	0	0	0	117	0
Stationary Machine Operators and Assemblers	283	0	2,722	858	232	4,092	312	112	976	0
Drivers and Mobile Machinery Operators	0	184	1,498	219	0	381	0	1,629	615	0
Building and Related Workers	0	0	0	0	0	567	0	0	0	0
Labourers and Related Elementary Service Workers	349	594	1,301	1,102	1,546	3,948	0	1,116	7,791	661

	Occupation of the second job									
Occupation of the first job	**Legislators, Administrators and Managers**	**Professionals**	**Technicians and Associate Professionals**	**Clerks**	**Service and Sales**	**Agriculture and Fishery Workers**	**Trades Workers**	**Plant and Machine Operators, Assemblers**	**Labourers, Related Elementary Service Workers**	**Not elsewhere included**
Legislators and Administrators	**0.0%**	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Corporate Managers	**20.4%**	17.6%	14.6%	5.7%	4.9%	15.3%	3.5%	0.9%	10.0%	7.0%
Occupation Level 1 - total	19.8%	19.9%	14.2%	5.6%	4.8%	14.9%	3.4%	0.9%	9.7%	6.8%
Physical, Mathematical and Engineering Science Professionals	9.7%	**23.5%**	47.3%	0.0%	14.7%	4.8%	0.0%	0.0%	0.0%	0.0%
Life Science and Health Professionals	8.0%	**14.3%**	23.5%	6.2%	7.9%	19.8%	0.0%	3.8%	5.0%	11.6%
Teaching Professionals	7.4%	**27.9%**	27.2%	3.1%	14.9%	14.6%	0.0%	2.2%	0.0%	2.7%
Other Professionals	16.0%	**51.5%**	3.3%	7.4%	3.7%	13.4%	0.0%	0.0%	0.0%	4.7%
Occupation Level 1 - total	9.8%	28.4%	22.8%	4.7%	10.1%	14.9%	0.0%	2.0%	1.6%	5.7%
Physical Science and Engineering Associate Professionals	14.9%	0.0%	**38.7%**	20.7%	3.7%	4.4%	3.8%	13.7%	0.0%	0.0%
Life Science and Health Associate Professionals	20.8%	0.0%	**12.4%**	7.1%	32.2%	19.4%	0.0%	0.0%	0.0%	8.2%
Other Associate Professionals	12.5%	2.3%	**39.0%**	10.0%	13.0%	13.1%	0.0%	5.8%	4.3%	0.0%
Occupation Level 1 - total	13.7%	1.7%	36.4%	11.4%	13.3%	12.3%	0.6%	6.5%	3.2%	0.8%
Office Clerks	0.0%	7.6%	18.2%	**30.5%**	8.9%	17.7%	1.3%	1.5%	11.7%	2.5%
Customer Services Clerks	11.4%	4.8%	7.0%	**14.0%**	32.4%	5.4%	0.0%	0.0%	22.7%	2.4%
Occupation Level 1 - total	4.2%	6.6%	14.1%	24.5%	17.5%	13.2%	0.9%	0.9%	15.7%	2.5%
Personal and Protective Services Workers	1.7%	1.5%	9.7%	8.3%	**39.0%**	15.7%	3.5%	0.5%	17.5%	2.7%
Salespersons, Demonstrators and Models	6.4%	2.2%	7.3%	12.8%	**35.3%**	21.4%	0.0%	0.0%	12.2%	2.4%
Occupation Level 1 - total	3.4%	1.8%	8.8%	9.9%	37.7%	17.8%	2.2%	0.3%	15.6%	2.6%
Market Oriented Agricultural and Fishery	20.6%	6.2%	15.9%	10.2%	14.4%	**17.4%**	1.8%	8.0%	5.5%	0.0%

	Occupation of the second job									
Occupation of the first job	**Legislators, Administrators and Managers**	**Professionals**	**Technicians and Associate Professionals**	**Clerks**	**Service and Sales**	**Agriculture and Fishery Workers**	**Trades Workers**	**Plant and Machine Operators, Assemblers**	**Labourers, Related Elementary Service Workers**	**Not elsewhere included**
Workers										
Occupation Level 1 - total	20.6%	6.2%	15.9%	10.2%	14.4%	17.4%	1.8%	8.0%	5.5%	0.0%
Building Trades Workers	0.0%	0.0%	11.4%	0.0%	3.8%	25.5%	**26.7%**	0.0%	18.8%	13.9%
Metal and Machinery Trades Workers	0.0%	0.0%	0.0%	0.0%	7.1%	21.6%	**55.4%**	4.7%	11.1%	0.0%
Precision Trades Workers	0.0%	0.0%	0.0%	0.0%	33.1%	24.1%	**0.0%**	42.8%	0.0%	0.0%
Other Craft and Related Trades Workers	6.1%	0.0%	3.1%	0.0%	0.0%	32.7%	**44.2%**	0.0%	13.9%	0.0%
Occupation Level 1 - total	1.3%	0.0%	5.1%	0.0%	7.1%	25.8%	35.9%	5.9%	13.5%	5.4%
Industrial Plant Operators	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**	100.0%	0.0%
Stationary Machine Operators and Assemblers	3.0%	0.0%	28.4%	8.9%	2.4%	42.7%	3.3%	**1.2%**	10.2%	0.0%
Drivers and Mobile Machinery Operators	0.0%	4.1%	33.1%	4.8%	0.0%	8.4%	0.0%	**36.0%**	13.6%	0.0%
Building and Related Workers	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	**0.0%**	0.0%	0.0%
Occupation Level 1 - total	1.9%	1.2%	28.5%	7.3%	1.6%	34.1%	2.1%	11.8%	11.5%	0.0%
Labourers and Related Elementary Service Workers	1.9%	3.2%	7.1%	6.0%	8.4%	21.4%	0.0%	6.1%	**42.3%**	3.6%
Occupation Level 1 - total	1.9%	3.2%	7.1%	6.0%	8.4%	21.4%	0.0%	6.1%	42.3%	3.6%