Multiple Job Holding: comparison of data from the Household Labour Force Survey and the Census

by
James Baines
James Newell
Nick Taylor

Working paper No. 12
Multiple Job Holding in New Zealand
(FRST Research Project TBAX0204)

Taylor Baines and Associates
December 2005

ISSN 1176-3523

TABLE OF CONTENTS

EXECUTIVE SUMMARY

1. The census covers the entire working-age population of the country, and therefore provides by far the best basis for analysing in detail the current patterns of multiple job holding in New Zealand.

2. Other official statistical surveys such as the Household Labour Force Survey and the Time Use Survey involve relatively small samples by comparison with the census.

3. For contemporary policy analysis and labour market policy development, the census has the obvious constraint of occurring only every five years, and therefore the data rapidly become historical. Nevertheless, the census does provide a periodic benchmark of comprehensive-ness and accuracy, against which other statistical data should be compared for validation purposes. This is the context for the content of this Working Paper.

4. As the research programme has progressed, there became apparent some substantial discrepancies between the quantitative outputs on multiple job holding from the census series and the HLFS series.

5. The differences in data generated on multiple job holding have significance for labour market policy itself, as well as significance for policy on statistical data gathering.

6. The two data sources have so far resulted in contrasting conclusions about the level of multiple job holding in the economy. The HLFS data have been interpreted within the Department of Labour as indicating that multiple job holding is a very minor (essentially insignificant) labour market phenomenon, which peaked at 4-5% in the mid-1990s, varies little from occupation to occupation, and is now declining. By contrast, the census data has been interpreted by the research team as a somewhat more significant labour market phenomenon, currently involving at least[1] one in every ten members of the labour force, with rates that vary markedly by occupation. While the rate showed signs of plateauing in the 2001 census, some segments of the labour market continued to exhibit substantial increases in multiple job holding rates in the 1996-2001 inter-censal period.

7. There does not appear to have been any systematic attempt to understand or reconcile the data differences described above. Consequently, attempts to recommend improvements to official statistics on multiple job holding have met with understandable reluctance.

8. It seems likely that a combination of factors - including recruitment difficulties and the resulting potential for sampling bias, differences in the questions asked and differences in the sampling frame - are responsible for these differences in data. Of the three factors mentioned, it appears that differences due to question wording and sampling frame are likely to be relatively minor. This leaves differences due to sampling bias in respect of certain key demographic variables as the likely principal source of difference between census and HLFS estimates of multiple job holding rates and other marginal labour market phenomena.

9. These findings raise important questions about the use of small-sample surveys to provide empirical data for policy development involving marginal labour market phenomena such as unemployment and multiple job holding.

10. This working paper is an attempt to promote constructive debate about the apparent contradictions in the various statistical sources and possible ways to improve both of them.

---

[1] The Time Use Survey suggests that the national multiple job holding rate may be as high as 13.1% of the Total Employed (Baines et al, 2005).

1 INTRODUCTION

1.1 Background to the research

This paper compares information from the Census and the Household Labour Force Survey (HLFS) as major sources of data for labour market policy analysis. As the Census covers the entire working-age population it provides by far the best basis for analysing in detail the current patterns of multiple job holding (MJH) in New Zealand in the particular year it is held, and over time. However, this research programme has found substantial discrepancies between the two sources of data in relation to the labour market. This paper is an attempt to understand or reconcile the data differences and promote constructive debate about the apparent contradictions in the various statistical sources.

The purpose of the 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). Essentially, the research aims to enhance and advance understandings of labour markets in this country. 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 the 2001 Census, the NZ Household Labour Force Survey series, and the Time Use Survey;

- preparing an overview of research interests and issues amongst potential users of the research, and reviewing approaches and definitions to develop the research framework;

- 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 in-depth interviews with 360 multiple job holders over six sectors.

The initial profiling work based on an analysis of the 2001 Census of Population and Dwellings was reported in April 2003 (Baines and Newell, 2003a). This was subsequently extended to a longitudinal analysis over the period 1991-2001 (Baines and Newell, 2003b) and then over the period 1981-2001 (Baines & Newell, 2005)

1.2 Selection of statistical data sources

In the Census of Population and Dwellings, the question is asked of all individuals living in private and non-private households “In the 7 days that ended on ..., did you have one job or more than one job?”. Since the Census in effect covers the entire working-age population of the country, it provides by far the best basis for analysing the current patterns of multiple job holding in New Zealand. The Household Labour Force Survey asks the somewhat different question “Did you have more than one

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

paid job last week?"[3]. Furthermore, the HLFS samples only from private dwellings. The working-age population (i.e. aged 15 years and above) at the time of the 2001 Census was 2,889,500. Other official statistical surveys, such as the Household Labour Force Survey and Time Use Survey, involve relatively small samples by comparison - see Table 1.

However, for contemporary policy analysis and labour market policy development, the census has the obvious constraint of occurring only every five years, and therefore the data rapidly become historical. Nevertheless, the census does provide a periodic benchmark that is comprehensive and accurate, against which other statistical data should be compared for validation purposes.

Table 1 Comparison of census and survey sample sizes

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

1.3 Contrasting data on multiple job holding

As the research programme has progressed, some substantial discrepancies between the outputs on multiple job holding from the census series and the HLFS series became apparent.

Figure 1 shows the basic time series data for numbers of multiple job holders (thousands) over the period common to the HLFS and the Census - 1986 to 2001. Figure 2 indicates the divergent trends for the March data on multiple job holding rates[5] in each census year.

[3] This would exclude (a) those whose first job was unpaid and who had a second/third job (paid or unpaid) and (b) those whose first job was paid and who had a second/third job which was unpaid.

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

[5] Multiple job holding rate being the percentage of those employed who have more than one job.

Figure 1 Trends in the number of MJHers (000s) - 1986 to 2001

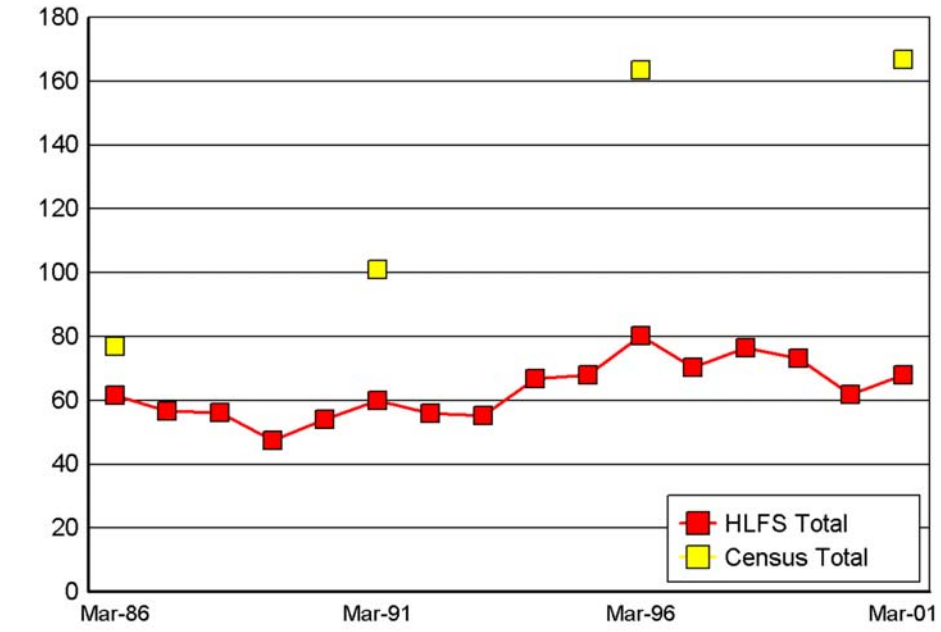


Figure 2 Trends in estimates of the national MJH rate - 1986 to 2001

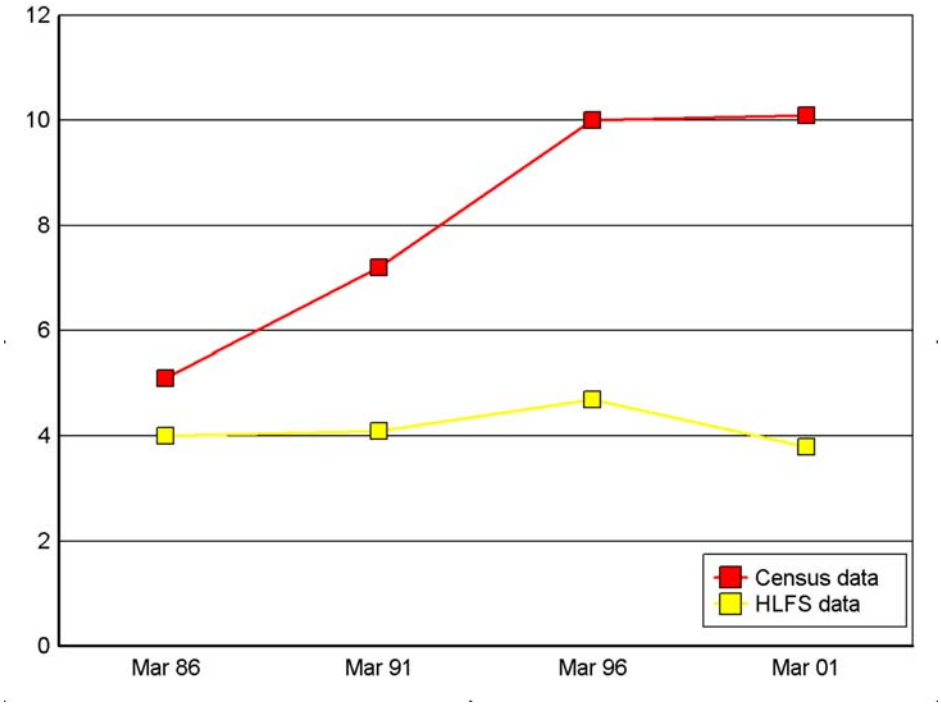


Table 2a highlights the growing divergence between HLFS data and census data on multiple job holding rates by expressing the HLFS data value at the same point in the year as a percentage of the corresponding census data value.

Table 2a Comparison of MJH rate estimates

Date	MJH % rate from HLFS	MJH % rate from census	HLFS estimate as a % of the census estimate
March 1986	4	5.1	78%
March 1991	4.1	7.2	57%
March 1996	4.7	10	47%
March 2001	3.8	10.1	38%

1.4 Possible explanations for the differences

The differences in MJH rates between estimates based on the HLFS and estimates based on the census could arise from several sources -

- different wording of the question related to the incidence of having more than one job (multiple job holding);
- different sampling frame (excluding or including non-private households);
- sampling bias for a sample of 30,000 individuals in the HLFS compared with 2.9million in the census.

The influence of different wording in the questionnaire:

As noted previously, the different wording of the question in the HLFS could be seen to exclude (a) those whose first job was unpaid and who had a second/third job (paid or unpaid) and (b) those whose first job was paid and who had a second/third job which was unpaid. The HLFS data series used here explicitly states "Incidence of either one paid job or more than one paid job" so that the emphasis was on paid, not unpaid work. Both type (a) and type (b) differences can be estimated by re-calculating census estimates to exclude responses associated with unpaid work.

The effect of the type (a) difference - adjusting the census to exclude multiple job holders whose first job was unpaid - is shown in Table 2b below.

Table 2b Comparison of MJH rate estimates, with census estimates adjusted to exclude those whose first job is Unpaid

Date	MJH % rate from HLFS	MJH % rate from census - unadjusted	MJH % rate from census, excluding those whose 1st job is Unpaid	% of MJHers who were Unpaid in their 1st job
March 1986	4.0%	5.1%	5.1%	1.8%
March 1991	4.1%	7.2%	7.2%	2.2%
March 1996	4.7%	10.0%	9.8%	5.6%
March 2001	3.8%	10.1%	9.6%	7.6%

The additional effect of the type (b) difference - adjusting the census to exclude multiple job holders whose second job was unpaid - can be estimated for 2001 by using data from the Time Use Survey on multiple job holding patterns. These data indicate that 14.8% of people reporting second jobs in 1998/99 recorded their second jobs as unpaid. The census-based estimate of MJH rate for 2001 would thus reduce to 8.2%. The HLFS data still accounts for less than half (46%) the multiple job holders recorded in the census.

The influence of a different sampling frame:

The difference in sampling frame derives from the fact that the HLFS samples only from private dwellings, whereas the census collects data from non-private dwellings as well.

At the 2001 census, there were 1,359,843 private occupied dwellings and 8,364 non-private dwellings. The largest numbers of institutions (non-private dwellings) involved residential homes for the elderly, hospitals, welfare institutions and educational facilities.

The influence of this different sampling frame has not been estimated quantitatively, but is not likely to be substantial, since occupants[6] in the non-private dwellings are unlikely to be in high-MJH categories.

The influence of sampling bias:

This factor is investigated in some detail in Section 2 of this report. The conclusion of that investigation is that sampling bias for small-sample surveys is likely to be the dominant factor in situations where marginal labour market phenomena are being analysed.

1.5 Significance for policy

The differences in data generated on this labour market phenomenon have significance for labour market policy itself, as well as significance for policy on statistical data gathering.

In the first instance, the two data sources have so far resulted in extremely contrasting conclusions about the level of multiple job holding in the economy. The HLFS data have been interpreted within the Department of Labour[7, 8] as indicating that multiple job holding is a very minor (essentially insignificant) labour market phenomenon, which peaked at 4-5% in the mid-1990s, varies little from occupation to occupation, and is now declining. By contrast, the census data have been interpreted by the research team as a more significant labour market phenomenon, currently involving at least[9] one in every ten members of the labour force, with rates that vary markedly by occupation, and showed

---

6 Note the distinction between occupants of these institutions and people employed by the institutions. Responses for the latter would be captured at their place of residence.

7 Presentation at 2002 LEW conference and subsequent discussions between DoL's Labour Market Policy Group (LMPG) and representatives of the FRST research teams working on Multiple Job Holding (Taylor Baines & Associates) and Non-Standard Work (Massey University)

8 As recently as May 2006, Dept of Labour views on multiple job holding were expressed in the following manner: *"About 4 percent of employed people have more than one paid job in any given reference week. This estimate of multiple job holding comes from the HLFS Income Survey, which asks 'how may paid jobs did you have altogether in that [reference] week?'. About 3 percent of employees in the 2003 HLFS-Income Survey reported earnings from a second wage or salaried job. In addition around 1.5 percent of employed persons reported income from both an employee job and a self-employment job (representing 1.3 percent of employees and 6.6 of the self-employed). To ensure than (sic) multiple job holders do not have to respond to an excessive number of questions, it is proposed that detailed information be collected in relation to the main job only (the one in which the respondent works the most hours)."* extract from p.11 of a draft document discussing the planned survey of employment conditions, work arrangements and quality of work, email correspondence between Sharon Boyd (DoL) and Eva McLaren (Massey University, Albany).

9 The Time Use Survey suggests that the national multiple job holding rate may be as high as 13.1% of the Total Employed.

signs of plateauing in the 2001 census, although some segments of the labour market continued to exhibit substantial increases in multiple job holding rates in the 1996-2001 inter-censal period.

The research teams[10] have discussed the differences in MJH data between the HLFS and the census both with members of the Labour Market Policy Group (LMPG) and with representatives of Statistics NZ, in oral and written submissions during planning for the 2006 census. These discussions have focused on the deficiencies of both data gathering instruments in terms of their capacity to furnish accurate and cost-effective data on multiple job holding. However, it was evident from these discussions that any changes to data gathering on labour market statistics would need the strong endorsement of the labour market policy agencies.

There does not appear to have been any systematic attempt to understand or reconcile the data differences described above. Consequently, attempts to recommend improvements to official statistics on multiple job holding have understandably not been seen as a priority.

This working paper is an attempt to promote constructive debate about the apparent contradictions in the various statistical sources.

[10] See footnote 2.

2 EMPLOYMENT DATA COMPARISONS BETWEEN HLFS AND CENSUS

2.1 Approach to data comparisons

Bearing in mind the differences between the two data-gathering instruments, particularly in respect of sample size, it is important to look for evidence of statistical agreement as well as to assess aspects of statistical divergence.

Section 2.2 summarises several aggregate comparisons - data for Total Employed (TE) and for Labour Force Participation Rates (LFPRs) - i.e. data on major aggregates that define the scale and composition of the whole labour force.

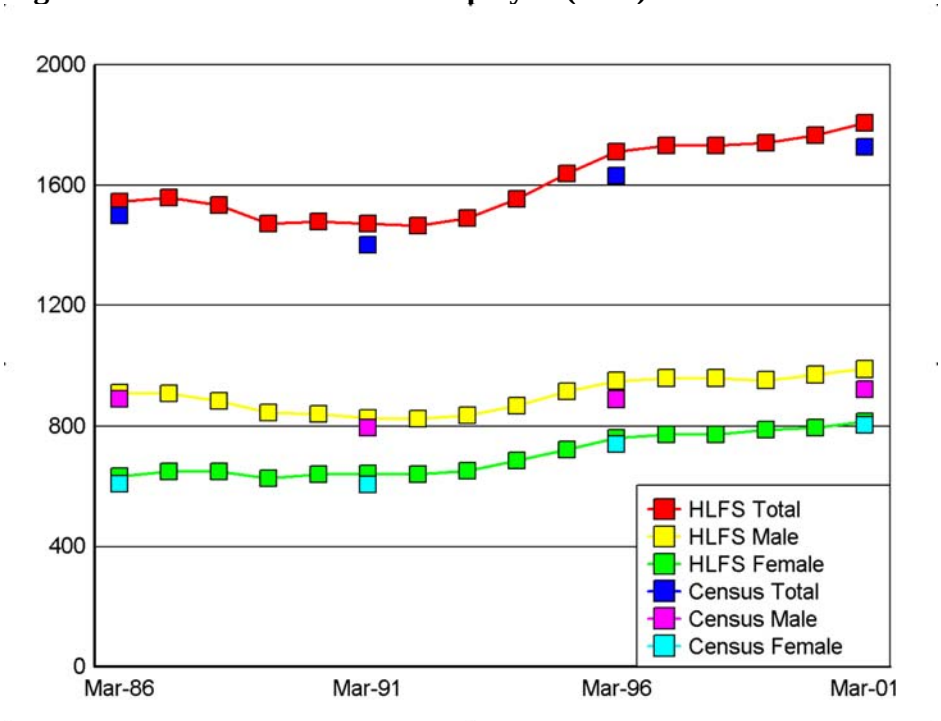
Section 2.3 summarises comparative data about phenomena on the margins of the labour market, namely data on unemployment rate and data on multiple job holding.

The HLFS data used in these comparisons is taken from the Department of Labour's website associated with the Future of Work programme, while the census data is provided from longitudinal analysis by the research team.

2.2 Total Employed and Labour Force Participation Rates

In the Future of Work programme, HLFS data on Total Employed was provided on a quarterly basis. The time series from March 1986 to March 2001 is shown in Figure 3 and compared with data from the census, also collected in March of each year.

Figure 3 Trends in Total Employed (000s): 1986-2001



The close correspondence between the two data sets is shown in Table 3 which expresses the HLFS data values as a percentage of the census data values[11]. This comparison indicates close correspondence as well as a consistent relationship over time.

Table 3 Trends in Total Employed: 1986-2001

Date	Total Employed from HLFS	Total Employed from census	HLFS estimate as a % of the census estimate
March 1986	1,544,100	1,499,400	103%
March 1991	1,471,300	1,400,400	105%
March 1996	1,711,000	1,630,800	105%
March 2001	1,806,300	1,727,300	105%

In the Future of Work programme, HLFS data on Total Employed by occupational group (1-digit level) were provided for two years, 1987 and 2002, citing averaged data for the year ending March in each case. The closest corresponding census data are for the 1991 and 2001 March years, i.e. one year earlier in each case. Tables 4(a) and (b) present the HLFS data and the census data for the two time periods, and compares distributional patterns between occupations.

Table 4(a) Comparison of Total Employed by main occupational group - 1991/92

	Total Employed (TE) by occupational group (1-digit level) HLFS data June91-March92	TE in occupation as % of Total Employed in all groups HLFS data June91-March92	Total Employed (TE) by occupational group (1-digit level) census data March 1991	TE in occupation as % of Total Employed in all groups. census data March 1991
Legislators, administrators & Managers	170,300	11.7%	162,318	11.8%
Professionals	192,700	13.2%	172,995	12.6%
Technicians & associate professionals	163,000	11.2%	145,269	10.5%
Clerks	211,000	14.5%	200,796	14.6%
Service & sales workers	188,700	12.9%	178,443	12.9%
Agriculture & fishery workers	158,800	10.9%	137,352	10.0%
Trades workers	145,600	10.0%	148,731	10.8%
Plant & Machinery operators & assemblers	134,200	9.2%	132,378	9.6%
Elementary occupations	94,800	6.5%	99,771	7.2%
All groups	1,459,100	100.0%	1,378,053	100.0%

[11] These census data values have not been adjusted for census undercount.

Table 4(b) Comparison of Total Employed by main occupational group - 2001/02

	Total Employed (TE) by occupational group (1-digit level) HLFS data June01-March02	TE in occupation as % of Total Employed in all groups HLFS data June01-March02	Total Employed (TE) by occupational group (1-digit level) census data March 2001	TE in occupation as % of Total Employed in all groups. census data March 2001
Legislators, administrators & Managers	244,600	13.3%	216,369	13.2%
Professionals	253,100	13.8%	244,788	15.0%
Technicians & associate professionals	230,200	12.5%	177,789	10.9%
Clerks	212,400	11.6%	226,119	13.8%
Service & sales workers	280,900	15.3%	242,502	14.8%
Agriculture & fishery workers	162,300	8.8%	137,475	8.4%
Trades workers	172,500	9.4%	145,281	8.9%
Plant & Machinery operators & assemblers	162,500	8.9%	142,119	8.7%
Elementary occupations	116,800	6.4%	100,638	6.2%
All groups	1,835,300	100.0%	1,633,080	100.0%

It is evident from comparing Tables 4 and 5 (below) that the HLFS achieves a sample which is more consistent with the whole population (as in the census) for demographic variables like age and sex distribution than for other variables like occupation. For example, the data presented in Tables 4(a) and (b) above suggest that the HLFS somewhat over-sampled people in professional occupations in 1991/92 but substantially under-sampled people in professional occupations in 2001/02. Similarly the occupations of Trade Workers, Plant & Machinery Operators, and Elementary Occupations were somewhat under-sampled or under-weighted in 1991/92 but somewhat over-sampled or over-weighted in 2001/02. In some occupational groupings (e.g. Legislators, etc.) the level of sampling or weighting in the HLFS matched the census well in both periods.

In the Future of Work programme, HLFS data on Labour Force Participation Rates (LFPR) were provided for two years, 1987 and 2002, citing averaged data for the year ending March in each case. The data were provided for 5-year age groups, separately for men and women. The closest corresponding census data are for the 1986 and 2001 March years, i.e. one year earlier in each case. However, it is evident from long-term trend data on LFPR (Taylor Baines & Associates, November 2005) that absolute levels were not changing substantially at this time. Table 5 presents the HLFS data and the census data, and then expresses the HLFS data values as a percentage of the corresponding census values.

Table 5 Comparison of Labour Force Participation Rates by age group and sex

	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
HLFS data on LFPR (%)										
Men (June1986-March1987)	66.4	92	95	95.7	96.6	97.1	95.7	94.1	86.2	44.7
Men (June 2001-March2002)	55	80.3	90.3	91.7	92.4	91.7	91.9	90.2	83.5	64.9
Women (June1986-March1987)	59.8	74	60.9	63.3	72.6	79.6	74.9	61.2	44.5	21.2
Women (June 2001-March2002)	53.9	68.5	69.7	66.6	72.1	81.4	81.6	77.4	60.5	42.4
Census data on LFPR (%)										
Men (March 1986)	65	90.7	94.8	95.5	96.3	96.2	95.6	93.5	87.1	42.4
Men (March 2001)	57.5	77.9	84.9	86.7	87.4	87.8	87.4	85.7	79.8	62.9
Women (March 1986)	60.7	74.3	62.9	63.3	72.7	76.3	73.4	62.3	43.2	16
Women (March 2001)	56.2	69.4	70.8	68.3	71.8	77.5	79.6	75.7	63.7	40.8
HLFS estimates as % of census estimates										
Men (1986/87)	102	101	100	100	100	101	100	101	99	105
Men (2001/02)	96	103	106	106	106	104	105	105	105	103
Women (1986/87)	99	100	97	100	100	104	102	98	103	133
Women (2001/02)	96	99	98	98	100	105	103	102	95	104

The comparison above reinforces the finding that the HLFS samples match the whole population (as in the census) quite well[12] for age and sex distribution.

2.3 Unemployment Rates and Multiple Job Holding Rates

In the Future of Work programme, HLFS data on Unemployment Rate nationally was provided on a quarterly basis between March 1989 and December 2002. This time series is shown in Figure 4 and compared with data from the census, collected in March of each year.

[12] The only exceptional data comparison in Table 5 being for women aged 60-64 in 1986. This category would have been one of the smallest sub-populations in the census data and therefore subject to the greatest risk of sampling error in the HLFS.

Figure 4 Trends in Unemployment Rate: 1989-2002

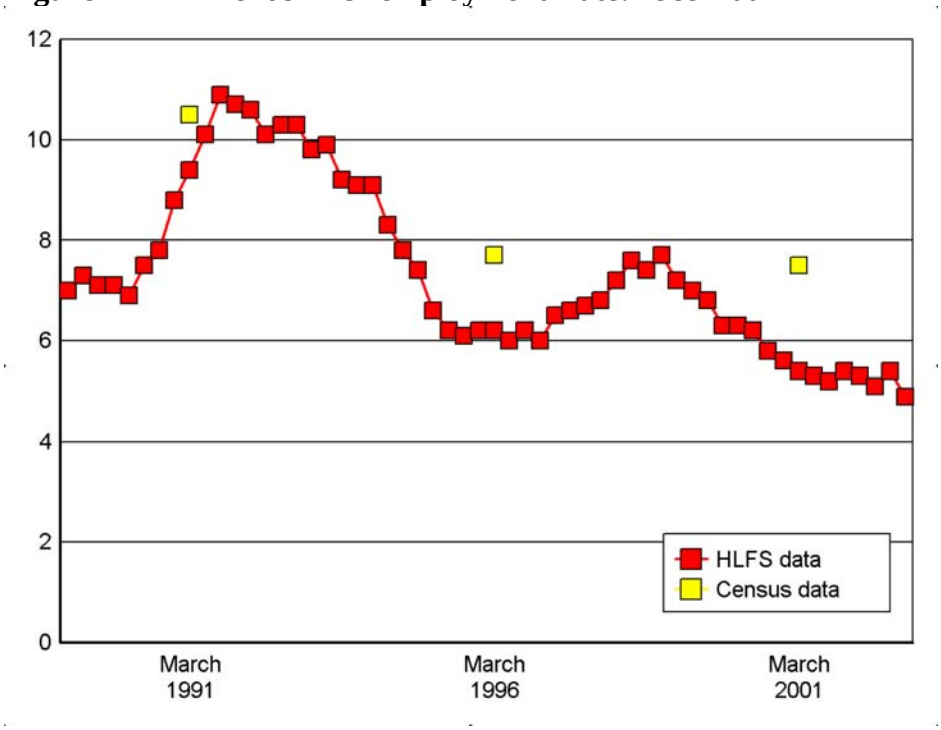


Table 6 highlights the growing divergence between HLFS data and census data on Unemployment Rate by expressing the HLFS data value as a percentage of the corresponding census data value.

Table 6 Comparison of Unemployment Rate estimates

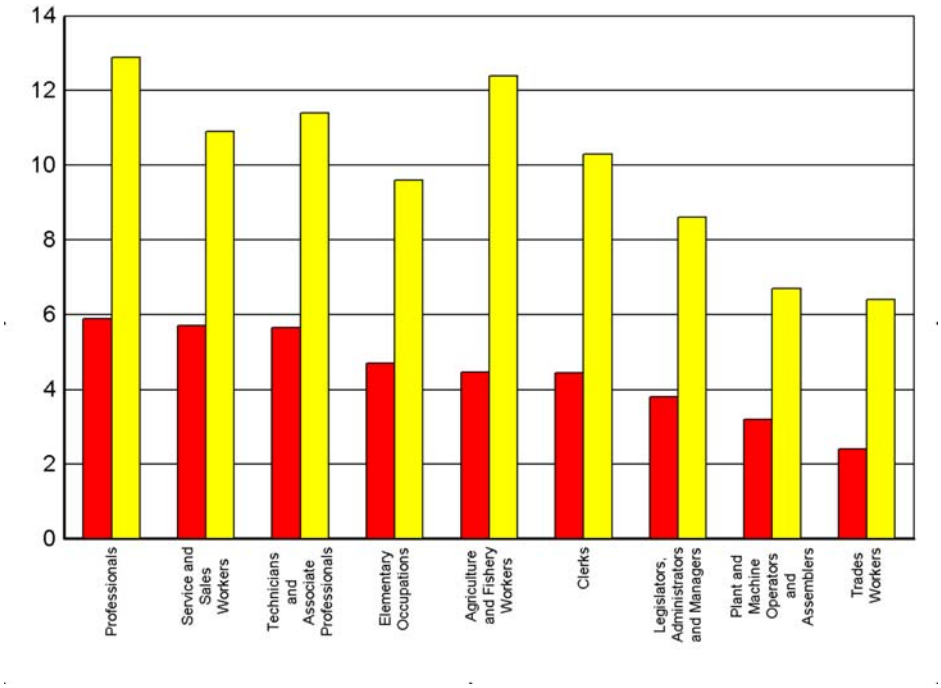
Date	Unemployment Rate from HLFS	Unemployment Rate from census	HLFS estimate as a % of the census estimate
March 1991	9.4	10.5	90%
March 1996	6.2	7.7	81%
March 2001	5.4	7.5	72%

Comparisons of multiple job holding rates (MJH rates) nationally have been presented at the beginning of this Working Paper (see Section 1.3). Previous research[13] has established that the incidence of multiple job holding across the labour force is more strongly differentiated by employment circumstances (e.g. employment status or occupation) than it is by demographic variables (e.g. sex, age, ethnicity).

Figure 5 presents a comparison of MJH rate estimates from the HLFS (year ended March 1998) and the census (March 1996) by main occupational group (1-digit level). The occupational groups have been ranked from highest (left) to lowest (right) according to the HLFS MJH rate estimate. It is evident that, while the HLFS and the census both show Professionals as being the occupational group with the highest MJH rates, the rank order for the next five occupational groups differs markedly between the HLFS and the census. This would appear to be further evidence of the difficulty, described previously following Tables 4(a) and (b), of achieving in the HLFS a distribution across occupational groups that is consistent with the population as a whole (as shown by the census).

[13] Refer to Baines and Newell (2003a), Working Paper No.2 in the series by Taylor Baines & Associates, at p.6

Figure 5 Comparison of MJH rates from HLFS (1998) and census (1996) by occupational groups



3 POSSIBLE EXPLANATIONS AND QUESTIONS

The following brief discussion draws on the research team's experience of data gathering in the field of multiple job holding, as well as the cues to be derived from the data comparisons presented in the previous sections.

Section 1.4 summarised the range of possible explanations for differences in the data. It was shown that differences in question wording between the HLFS and the census accounts for some of the difference in estimates of MJH rate, but it does not account for most of the difference. Nor is the different sampling frame (excluding or including non-private dwellings) likely to be a major contributor to the difference in estimates of MJH rate.

This leaves for consideration the issues of sampling bias, particularly in relation to certain demographic variables and the investigation of marginal labour market phenomena such as unemployment rate and MJH rate.

3.1 A highly differentiated labour market

The overall labour market is in fact a multitude of many geographical and sectoral/occupational labour markets, which are highly differentiated.

The incidence of multiple job holding is not evenly distributed across industries or occupations. Previous research[14] has shown that most of the increase in the numbers of people with more than one job, which occurred between 1991 and 2001, did so in a small number of specific occupations[15].

This brings into question the notion of sampling bias for a HLFS sample of 15,000 households and approximately 30,000 individuals out of a labour force currently in the vicinity of 2million workers - a sample of approximately 1.5%. Which criteria are given priority in determining the sampling procedure for recruiting individuals and households into the HLFS? Since the Selection Unit is the household, it is perhaps more likely that general demographic variables (e.g. age, sex, personal income) will be well matched than specific occupational and employment variables (e.g. employment status, occupation), which apply to individuals. Table 7 highlights the potential influence of such sampling issues by demonstrating the range of MJH rates that occur between categories within each single demographic variable.

[14] Refer to Baines and Newell (2003b) Working Paper No.5 in the series by Taylor Baines & Associates, at pp.13-14.

[15] Approximately 11 out of 56 at the 2-digit level, or approximately 58 out of 516 at the 5-digit level.

Table 7 Comparison of highest and lowest MJH rates between categories within each census variable, 2001 census.

Demographic variable	Highest MJH rate	Lowest MJH rate	% (L/H)
Sex	10.4	9.1	87%
# of children in the household	11.2	8.3	74%
Marital status	10.5	7.7	73%
Personal income	12.8	7.9	62%
Age	12.1	6.7	55%
Household composition	11.2	5.1	46%
Educational level	16	6.6	41%
Geographical type (e.g. urban vs rural)	20.2	7.9	39%
Occupation (1-digit)	17.5	6.4	37%
Industry sector (1-digit)	17.9	5.5	31%
Occupation (2-digit)	18.1	5.3	29%
Territorial Local Authority	19.8	5.4	27%
Employment status	32.8	7.9	24%

From Table 7, it is evident that MJH rates derived from a partial sample of the population (as in the case of the HLFS) will be much more susceptible to error if the sampling does not achieve a good representation of occupational types, industry types, ethnicities and employment status types than if the sample is unrepresentative of age, personal income, household size or sex. Indeed the scope for variation due to sampling is sufficient to account for the differences that remain to be explained between MJH rates estimated from the census and those estimated from the HLFS.

As a particular example of this problem of sampling bias, any geographical sampling bias is likely to have implications for the MJH estimates derived, since certain high-MJH occupations are specifically rural in nature. As shown in the 2001 census data in Table 7 above, the MJH rate for main urban areas was only 39% of the MJH rate for rural areas[16].

We know from the research[17] that the phenomenon of multiple job holding involves a high degree of working across occupational groups, and that there may be somewhat different treatment of what is the first or main job between different data gathering instruments.

In summary, it would appear that a consistent treatment of occupational sampling and achieving a sample that is representative of the mix of employment status is critical to achieving data consistency in analyses of multiple job holding.

These difficulties in sampling are understandable. It would be extremely time consuming - and a potential nightmare for survey administration - to achieve a sample of 30,000 individuals which is representative of the whole population on <u>all</u> demographic criteria. However, one of the consequences of such sampling bias is that the results for marginal labour market phenomena (such as multiple job holding and unemployment) may involve significant errors.

---

16 Refer to Baines and Newell (2003a) Working Paper No.2 in the series by Taylor Baines & Associates, at p.12, Table 14.

17 Refer to Baines et al (2005) Working Paper No.9 in the series by Taylor Baines & Associates, at pp.16-17.

3.2 Recruitment difficulties

This research programme has involved recruiting and interviewing multiple job holders in six high-MJH occupations. Although they achieved their target of 60 interviewees in each sector[18], the researchers encountered difficulties in recruitment in some sectors, such as café and restaurant workers and accountants; the recruitment strategy was purposive, rather than random. Nevertheless, this experience serves to highlight the difficulties in recruiting multiple job holders. A common feature of multiple job holders - regardless of whether they are of the high-income or low-income variety - is that they tend to work longer hours than people with only one job at a time. This is likely to aggravate the difficulties of recruitment further, particularly for a sample survey in comparison with a census, in which there is likely to be a stronger sense of obligation (as well as a legal requirement) to take part.

This research programme has noted previously that there can be other reasons why people working on the margins of the labour market - particularly in various forms of non-standard work - would be reluctant to take part in statistical surveys and therefore more difficult to sample than others. For example, some people may be reluctant to report on their job status in order to protect their status as a beneficiary. While this is not unique to the HLFS, it is nevertheless a possible factor.

3.3 Conclusions

As the research programme has progressed in profiling multiple job holding in New Zealand from official statistics, substantial discrepancies between the quantitative outputs on multiple job holding from the census series and the HLFS series became apparent The differences in data generated on multiple job holding have significance for labour market policy as well as policy on gathering official statistics.

It seems likely that a combination of factors - including recruitment difficulties and the resulting potential for sampling bias, differences in the questions asked and differences in the sampling frame - are responsible for these differences in data. Of the three factors mentioned, it appears that differences due to question wording and sampling frame are likely to be relatively minor. This leaves differences due to sampling bias in respect of certain key demographic variables as the likely principal source of difference between census and HLFS estimates of multiple job holding rates and other marginal labour market phenomena.

Furthermore, the differences appear to have been increasing over time.

The size of the census database allows the most comprehensive analysis of certain labour market phenomena, due to the scope for exploring multi-dimensional correlations. The census therefore should provide the most accurate data on mainstream labour market phenomena at the time when the data is collected - once every five years, in March of the census year. As such, it provides a periodic benchmark against which other statistical data should be compared for validation purposes.

However, when using the census-based data for time series analysis, it must be remembered that the census provides only a sequence of snapshots. Census data tell us nothing about what happens at other times of the year or in the intervening years. Therefore, time series comparisons must be interpreted with caution. Inter-censal comparison will certainly indicate whether any particular phenomenon (e.g. total employed or total unemployed) has increased in scale, decreased in scale, or

[18] Note that the emphasis in these surveys was on in-depth, qualitative analysis, rather than statistical analysis.

remained unchanged. However, because of the 5-year periodicity, census time series will not necessarily indicate precisely the absolute magnitudes of the peaks and troughs in such phenomena, nor their timing. The census time series must therefore be considered as a surrogate or smoothed time series.

Interpolation between census data sets might be possible with the aid of other continuous statistical data sets, such as the quarterly Household Labour Force Survey. However, this would be possible only if the two data sets can be satisfactorily reconciled at their points of intersection. For data on multiple job holding rates (and also unemployment rates) this is presently not the case. These disparities raise important questions about statistical data which are used to analyse and prescribe policy for labour market phenomena which are marginal. By definition, both multiple job holding and unemployment are such phenomena.

The two data sources have so far resulted in contrasting conclusions about the level of multiple job holding in the economy. The HLFS data has been interpreted in the past by officials[19]as indicating that multiple job holding is a minor labour market phenomenon that peaked at 4-5% in the mid-1990s, varies little from occupation to occupation, and is now declining. By contrast, the census data has been shown by this research to be a somewhat more significant labour market phenomenon, currently involving at least[20] one in every ten members of the labour force, with rates that vary markedly by occupation. While the MJH rate showed signs of plateauing in the 2001 census, some segments of the labour market continued to exhibit substantial increases in multiple job holding rates in the 1996-2001 inter-censal period.

There does not appear to have been any systematic attempt to understand or reconcile the data differences described above. Consequently, attempts to recommend improvements to official statistics on multiple job holding have met with understandable reluctance. This working paper is an attempt to promote constructive debate about the apparent contradictions in the various statistical sources.

19 For example, discussion at the Tenth Labour, Employment and Work Conference (Wellington, 2002) following the paper presented by D. Grimmond of the Labour Market Policy Group.

20 The Time Use Survey suggests that the national multiple job holding rate may be as high as 13.1% of the Total Employed (Baines et al., 2005).