

The Potential Influence Of Multiple Job Holding On Official Statistics Describing The Rural Workforce: Issues For Data Series And Workforce Policy

Paper Presented at the New Zealand Agricultural and Resource Economics Society
Conference 25-27 August 2006

Nick Taylor, Taylor Baines & Associates, Christchurch

James Baines, Taylor Baines & Associates, Christchurch

James Newell, Monitoring and Evaluation Research Associates, Wellington

The research programme on multiple job holding identified substantial discrepancies between the Census and HLFS series regarding the increasing level of rural multiple job holding 1981 to 2001. Furthermore, evidence from the Time Use Survey suggests that the distribution of second job occupations does not match those for first jobs. This result and qualitative data indicate answers to census questions could lead to under-reporting of some rural occupations "hidden" as second jobs. Any under-reporting of the scale and form of the rural labour force in official statistics has implications for understanding rural occupations and industries, and formulation of rural policies.

Keywords: census data, rural labour market, multiple job holding

Introduction

This paper addresses potential discrepancies in data generated for rural occupations generally as a result of specific investigations into rural multiple job holding. These data issues have significance for rural labour market policy and for statistical data gathering about the rural economy.

The current research programme (funded by the Foundation for Research, Science and Technology, contract TBAX0204) aims to provide knowledge about the way individuals, families and communities in New Zealand are adapting to social and economic change through multiple job holding. The research began in 2001 and is contracted through to 2007. Multiple job holding has been tightly defined in the research as paid or unpaid work for more than one employer or family business or farm in the course of the most recent week. Broader definitions could include work held over a longer time period, and seasonally.

Research reported in this paper confirms previous studies that show multiple job holding is well entrenched as part of the economic activity of farm households (Taylor et al., 2004), as reported previously to this conference (Taylor and McClintock, 2004). The research shows the importance of multiple job holding in the rural economy and for farming in particular. Multiple job holding by farm men and women has become a feature of the New Zealand farming scene over the last 25 years. Indeed, the initial premise of the research programme that multiple job holding is an adaptive response by individuals and families facing economic stressors can now be extended as multiple job holding is observed amongst both the low and high socio-economic status groups. More than a short-term transitional phenomenon, multiple job holding tends to be sustained by particular segments of the economy, defined by occupational groups, over time. Moreover, we suspect that the rise of multiple job holding and associated changes in the nature of work are tightly linked with the growing demand for specialist skills in the NZ economy.

This paper considers discrepancies in data generated on multiple job holding in New Zealand from the Census and other official statistical surveys such as the Household Labour Force Survey and the Time Use Survey. Using the Census as a five yearly benchmark the research shows substantial discrepancies between data sets on the level of multiple job holding in the period 1981 to 2001. Qualitative data from surveys of farmers and small accommodation providers indicate potential under-reporting for rural occupations. This is an important issue for rural areas, where the level of multiple job holding is high. Estimates of possible under reporting for rural occupations over the period 1981-2001 suggest official statistics may not provide a full and unbiased estimate of rural occupations and labour markets for the formulation of rural policies.

The census benchmark

As the census covers the entire working-age population of the country, it provides the best basis for analysing patterns of multiple job holding in New Zealand, compared to other official statistical surveys such as the Household Labour Force Survey and the Time Use Survey, which involve relatively small samples by comparison. The Census, unlike surveys, is not subject to sampling error with a relatively small number of non-responses, and is capable of being analysed simultaneously in detail (by sex, age, ethnicity, etc.) It provides a five yearly benchmark to assess other statistical data. As the research programme potentially least subject to sampling error, with a on multiple job holding progressed, substantial discrepancies became apparent between the census and HLFS series regarding the level of multiple job holding in the period 1981 to 2001.

In the Census of Population and Dwellings, the question is asked “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 most comprehensive basis for analysing the current patterns of multiple job holding in New Zealand. The actively employed working-age population (i.e. aged 15 years and above) at the time of the 2001 Census was 1,727,271. Other official statistical surveys, such as the Household Labour Force Survey and Time Use Survey, involve relatively small samples by comparison (Table 1).

Table 1: Comparison of census and survey sample sizes

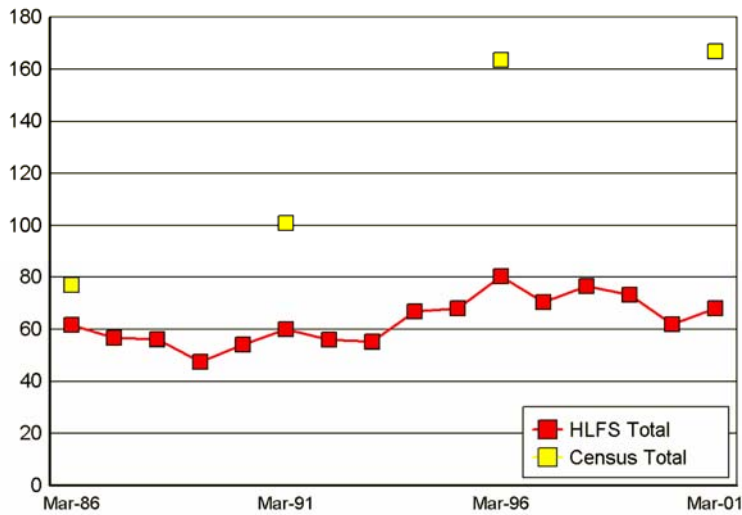
Census/survey	Timing	Sample size
2001 Census of Population and Dwellings	Five-yearly intervals; most recently in March 2001	1,727,271 aged 15 years and above
Household Labour Force Survey	Quarterly since 1985	30,000 individuals in 16,000 households
Time Use Survey ¹	Once only so far: July 1998 - June 1999	~8,500 individuals

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.

¹

Carried out in conjunction with the Ministry for Women=s Affairs.

Figure 1 Trends In The Number Of MJHers (000s) 1986 To 2001



As the research programme progressed, some very substantial discrepancies became apparent between the figures on multiple job holding from the Census series and the HLFS series. Figure 1 shows the basic time series data for numbers of multiple job holders over the period 1986 to 2001 common to the HLFS and the Census. Table 2 indicates the divergent trends for the March data on multiple job holding rates in each census year.

Table 2: Comparison Of MJH Rate Estimates, March Quarter And Census

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%

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 statistical divergence. Comparison of data on major aggregates that define the scale and composition of the whole labour force, including data for Total Employed and for Labour Force Participation Rates, shows more consistency than comparisons with data about phenomena on the margins of the labour market, namely data on the Unemployment Rate and multiple job holding. It is also evident 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.

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. Indeed, previous research (Baines and Newell, 2003) has shown that most of the increase in the numbers of people with more than one job between 1991 and 2001 did so in a small number² of specific occupations.

There is an important difference between the HLFS and the Census instruments. The HLFS records details about the first job whether paid or unpaid family business, however, it registers a second job only if it is paid! Clearly this approach creates potential problems for people working on farms as a second job in the family business. In contrast the TUS and the Census both count the first or second job paid or unpaid. The TUS, however, was specific in its attention to details of the second and third job, whereas the Census gives us no details about the second job but allows us to infer that a second job existed

Furthermore, rates of multiple job holding 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. As a particular example of this problem of sampling bias, any geographical sampling bias is likely to have implications for estimates of multiple job holding derived for the total population, since certain occupations are specifically rural in nature. This issue is discussed in more detail below.

Evidence from the Time Use Survey

The Time Use Survey (TUS) is of particular interest in research 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.

From all responses in the TUS 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 multiple job holding at 13.1% in 1998/99. This compares with the census-based estimates of 10.0% in 1996

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

and 10.1% in 2001, indicating, not surprisingly, that by asking more specific questions about the second and additional jobs the rate of multiple job holding goes up, as respondents are more likely to recall the distinction or to realise that this extra information is of interest.

The TUS estimate of the national multiple job holding 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 multiple job holding rates for women peaked and then began to decline gradually after 1996 (Baines and Newell, 2005). This appears to be the overall national trend for rates among women workers. However, there are segments of the female labour force (e.g. age bands, some occupations) where rates of multiple job holding are still increasing and other segments where the decline has been more pronounced. The corresponding differences for the national multiple job holding rate for men are less pronounced; the TUS estimate of the national multiple job holding 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 multiple job holding rates for men and rural areas have continued to increase overall between 1996 and 2001, although trends for men display a similar variability to those for women for market segments.

Furthermore, evidence from the Time Use Survey suggests that the distribution of second job occupations does not match those for first jobs. 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 additional jobs that multiple job holders work in, simply indicating that some people do have more than one job.

For these reasons, the TUS is particularly helpful in enabling some analysis of the occupational profile of multiple job holders. The TUS asked for the occupation of each job separately, whether or not the occupation was the same or different. It can be seen from Table 3 that there is a very high level of cross-occupational multiple job holding by agriculture and forestry workers, which implies that these people are applying somewhat different skill sets in their various jobs. Furthermore, in no occupational type is there a majority of multiple job holders who work in the same occupation for their first and second jobs (Baines et al., 2005).

Table 3: Proportion of Agriculture and Fishery Workers First and Second Jobs

Occupation of the first job – Class 1	Proportion in second job where Agriculture and Forestry Work is the first job	Proportion of Agriculture and Forestry workers in second job
Legislators, Administrators and Managers	20.6%	14.9%
Professionals	6.2%	14.9%
Technicians and Associate Professionals	15.9%	12.3%
Clerks	10.2%	13.2%
Service and Sales Workers	14.4%	17.8%
Agriculture and Fishery Workers	17.4%	17.4%
Trades Workers	1.8%	25.8%
Plant and Machine Operators and Assemblers	8.0%	34.1%
Labourers and Related Elementary Service Workers	5.5%	21.4%
Not elsewhere included	0.0%	27.6%

Survey data from Ashburton District

Other activities of this research programme have identified factors that encourage or inhibit the adoption of multiple job holding as a change strategy, and determine the impacts of multiple job holding on individuals, families and communities. These sector-specific, in-depth interviews have revealed information that suggests simple assumptions about which job people think of as their first or main job based simply on hours of work 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 discussed above, there is reason to suspect that Census responses related to which job is designated the first or main job (ie, responses on occupation or employment status, for example) are different from responses to similar questions in the TUS where the latter was more probing in its enquiry.

As reported to this conference previously (Taylor and McClintock, 2004), of 60 farmer respondents most (73%) indicated that their second job was a farmer or farm worker. Of these 44 respondents 57% were women and 43% were men.

A second cycle of interviewing – for people identified nominally as working in the accommodation sector – was also concentrated in the Ashburton District but with some urban respondents as well (Robertson, 2006). Of all respondents, only 17% saw their work in the small accommodation sector as their main job. Of 17 respondents who identified farming as a job, 12 saw farming as their main job and another 5 as their second job.

These data from farmers indicate that their answers to the census questions about occupations could lead to under-reporting of some rural occupations "hidden" as second jobs, including both farming and small tourism enterprises. The issues of underreporting of agricultural work by women has been of longstanding interest to rural sociologists and economists, however, underreporting arises for both women and men involved in multiple job holding. This issue arises because statistics about occupations in New Zealand are structured around the main job an individual worked the most hours in during the census week. This time period may not be representative of the week-by-week situation of the respondent. Moreover, a respondent engaged in multiple job holding might choose (if given the freedom to do so) other jobs as their main job, determined by factors such as income earned, sense of satisfaction, or occupational identity rather than the hours worked.

Consider, for example, the following three cases (realistic cases based on interviews) for a week's work in late March: In all cases the farm jobs should be lost from the census data apart from an indication that the person held two or more jobs and their total hours of work, because they should not count farming as the job they did most hours of work in.

Case 1 – a male works 30 hours a week in his seasonal seed drying business, 20 hours on his irrigated cropping farm and carried out 3 hours maintenance on an investment property. He identifies himself as a farmer but completes the Census as a seed dryer.

Case 2 – a female works 35 hours as a nurse and 20 hours assisting with harvesting, stock work, cooking for farm workers and farm administration, describes and records her occupation as a nurse and tends to underrate her contribution to farm work.

Case 3 – a female works 30 hours as a seamstress but sees herself as a farmer and did a further 25 hours as a farm worker (mainly in stock work) plus a further 10 hours in cooking for farm workers and administrative tasks, which she didn't see as unpaid work in the farm business and therefore records herself erroneously as a seamstress.

Multiple job holding in agriculture and rural areas

The extent of this problem becomes more apparent when one looks at the rate of multiple job holding in some key rural occupations (Table 4). These occupations have some of the highest levels of multiple job holding recorded in New Zealand. The high levels of multiple job holding occur for both women and men although women generally have the higher rates. It should be emphasised that this multiple job holding is by

individuals where agriculture is the main occupation; they do not capture those working in more than one job where the second or subsequent job is in agriculture.

Table 4: Multiple Job Holding Of Selected Agricultural Occupations 2001

Occupation OCC99905ATL	Multiple job holders		Total work force		MJH rate%	
	Female	Male	Female	Male	Female	Male
065 Agricultural consultant	57	240	207	951	29.2	25.5
175 Livestock buyer	9	156	21	540	37.5	28.9
180 Stock and station agent	6	78	9	267	66.7	29.9
281 Field crop grower and related	108	216	423	1083	25.2	20.1
283 Fruit grower/worker	747	1020	4971	7527	15.1	13.6
284 Grape grower or wine maker	171	285	1095	1803	15.8	16.0
289 Dairy farmer/worker	1941	2337	9006	17265	21.5	13.6
290 Sheep farmer/worker	726	1332	2292	6198	31.8	21.6
291 Cattle farmer/worker	372	582	1188	2421	31.6	24.2
292 Pig farmer/worker	72	48	99	309	23.5	15.5
293 Goat farmer/worker	27	21	63	75	42.9	28.0
294 Deer farmer/worker	90	186	264	663	34.9	28.3
295 Stud horse breeder/worker	66	51	252	270	26.2	19.1
296 Other livestock farmer/worker	240	423	786	1821	30.8	23.3
297 Mixed livestock farmer/worker	420	657	1350	3534	31.3	18.7
298 Poultry farmer/worker	57	69	570	681	10.1	10.3
300 Crop and livestock farmer/worker	2436	3462	8178	17742	30.0	19.7
301 Shepherd or musterer	75	231	261	1602	28.7	14.5
302 Shearing contractor/shearer	18	312	87	1887	21.4	16.7
304 Shearing shed hand	102	54	969	435	10.7	12.5
Total	7740	11760	32091	67074	24.0	18.0

Note: Proper numbers contain standard rounding by Statistics NZ

Another way of looking at this problem is to consider rural areas generally. Rural areas should reflect high rates of multiple job holding in general, ie across all occupational groups. Furthermore, we can expect that the rate of multiple job holding might be high across types of rural area, notwithstanding the possibility that the availability of non-agricultural work might be less in the more sparsely settled areas, remote from diverse labour markets.

The data assembled in Table 5 confirms that rural areas, including more sparsely settled areas, have high levels of multiple job holding. Most interestingly, while the rate of multiple job holding fell slightly for the three main urban categories in the 1996-2001 period, it continued to rise steeply for the four rural categories, including for the highly rural/ remote areas.

The research has therefore identified at least two narratives emerging from analysis of trends in the labour market including multiple job holding. There is one picture in the rural economy of the growing importance of multiple job holding as an adaptive response to a more diverse rural economy sustained by complementary contributions of different activities eg, agriculture, hospitality, services and infrastructure. Another picture emerges of an urban economy settling back overall towards more traditional notions of wage and salary work but with some areas of specialised economic activity involving flexible work including multiple job holding.

Table 5: Rates Of Multiple Job Holding By Settlement Type 1981-2001

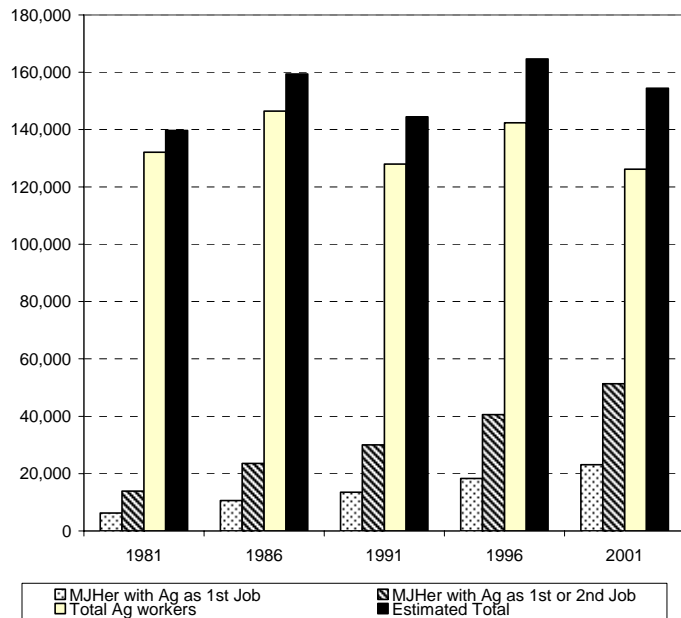
Settlement type	1981	1986	1991	1996	2001
Main Urban Area	3.9	4.6	6.2	9.0	8.2
Satellite Urban Area	4.0	4.5	6.4	8.9	8.7
Independent Urban	4.0	4.5	7.1	10.2	9.2
Rural – High urban influence	7.3	8.7	12.2	16.8	19.6
Rural – moderate urban influence	6.3	8.0	12.0	16.5	20.6
Predominately Rural	5.8	7.8	12.3	16.1	20.3
Highly Rural/remote	5.4	7.5	12.0	15.8	20.3
All Types	4.2	5.1	7.2	10.3	10.2

Note: The settlement type concept used here follows the 2004 Statistics NZ definition of levels of urban influence classification

Estimates of under reporting for the rural workforce

There are difficulties using existing data sets to estimate the level of possible under reporting of rural occupations over the 1981-2001 period. Figure 2 provides one attempt to make such an estimate, with the intention of promoting constructive debate about apparent contradictions in the various statistical sources.

Figure 2 Trends in multiple job holding and related potential under reporting in the agricultural workforce 1981-2001



The figure shows a) the trend in actual multiple job holding (number of workers with more than one job whose reported first job is in agriculture for that Census), b) an estimate of the number of multiple job holders based on the TUS and the proportion of multiple job holders from the Census, c) the actual number of agriculture workers at the Census and d) the estimated total workforce from the additional multiple job holders.

The key point here is that there is a trend of increasing potential disparity arising from the increasing proportion of multiple job holders. Furthermore, this is a conservative exercise based on the only available official national statistics. Field research indicates that the proportion of rural workers with an additional job in agriculture may well be higher.

Another issue is that while the total numbers of agriculture sector workers is important, there is a second issue around the nature of the under reported jobs. It is likely that the underreported jobs in agriculture have a different profile of hours worked, age, sex, employment status, etc. compared to those reported. When trying to address issues such as the labour pool available for meeting seasonal labour needs, this under-reported group may be of particular importance.

Conclusions

Different data sources have resulted in contrasting conclusions about the level of multiple job holding in the economy. The HLFS data has been interpreted within the Department of Labour³ as indicating that multiple job holding is a 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 us as revealing multiple job holding is a more significant labour market phenomenon, currently involving at least one in every ten members of the labour force and one in five members of the rural workforce. This rate varies markedly by occupation and settlement type. While the overall rate shows signs of plateauing in the 2001 census, some segments of the labour market, particularly in rural areas, continued to exhibit substantial increases in multiple job holding rates in the most recent inter-censal period. In fact, multiple job holding rates for rural areas grew more rapidly between 1996 and 2001 than any other inter-censal period to date.

The research team has discussed the differences in data on multiple job holding between the HLFS and the Census both with members of the Department of Labour and representatives of Statistics NZ, especially in oral and written submissions during planning for the 2006 census. These discussions focussed on the deficiencies of official data gathering instruments in terms of their capacity to furnish accurate and cost-effective data on multiple job holding and the distorted picture presented by ignoring the contribution of second and other jobs on the make up of the economy. Issues to face include the effects of sampling error on accurate representation of marginal labour market phenomena and the design of census and survey questions. Of course, changes in census and survey design and sample weighting regimes of Statistics NZ must always be balanced with the need to maintain historical consistency and continuity. It is evident that any changes to data gathering on labour market statistics would need the strong agreement and endorsement of the labour market policy agencies, including agriculture and resource focussed agencies.

Any under-reporting of the scale and form of the rural labour force in official statistics data could be very misleading about the scale of employment in various occupations, how these change over time, and whether other potentially important attributes (eg, part-time vs full-time work or wage and salary vs self employment) are changing the composition of an occupational group and the dynamics of the associated labour markets. There are implications for the assumptions made about availability of rural workers to fill unmet demands for specific occupational skills and formulation of rural policies, such as policy on workforce training, small business facilitation, rural service delivery, emergency service provision, farm support and disaster relief.

³ 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)

The differences in data generated on labour market phenomenon such as multiple job holding have significance for labour market policy itself, as well as significance for policy on statistical data gathering. The analysis of multiple job holding also points to the possibility of undercounting of agricultural workers in official statistics used to describe the rural workforce and total workforce, because many agricultural jobs are held as second jobs. Issues of under reporting in official statistics are assuming growing importance, as identified by Callister, Bedford and Didham (2006), for example.

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

References

- Baines, James and Newell, James (2003). Trends in multiple job holding in the New Zealand economy 1991-2001. Working paper No. 5, Multiple Job Holding in New Zealand, Taylor Baines and Associates, Christchurch.
- Baines, James and Newell, James (2005). Trends in the New Zealand labour market, non-standard work and multiple job holding 1981-2001. Working Paper No. 11, Multiple Job Holding in New Zealand, Taylor Baines and Associates, Christchurch.
- Baines, James; Newell, James and Bronwyn Morgan (2005). Morgan Multiple Job Holding data from the Time Use Survey 1998/99. Multiple Job Holding in New Zealand, Working Paper No. 9, Taylor Baines and Associates, Christchurch.
- Callister, Paul; Bedford, Richard and Robert Didham (2006). Globalisation, gendered migration and labour markets, Department of Labour Future of Work Discussion Paper.
- Robertson, Nicola (2006). Analysis of interviews with people holding multiple jobs in the small accommodation sector. Multiple Job Holding in New Zealand, Working paper No. 15, Taylor Baines and Associates, Christchurch.
- Taylor and McClintock (2004). Some characteristics of multiple job holding by New Zealand farm men and women. *Papers presented at the Tenth Annual Conference of the New Zealand Agricultural and Resource Economics Society, Blenheim, Discussion paper 151*, Agribusiness and Economic Research Unit, Lincoln University.
- Taylor, Nick; McClintock, Wayne; Baines, James and James Newell (2004). Multiple job holding in the agriculture sector. *New Zealand Journal of Employment Relations*, 29, 3:67-82.