

**Parents' Work Arrangements and Informal Care Use: Multivariate
Analysis of Factors Associated with Mothers' Employment Status**

by

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INTRODUCTION

Set against long-term social and demographic changes, recent rises in New Zealand's female labour force participation rates have drawn attention to the importance of policy which considers the need for parents to reconcile the family's economic and child-rearing needs (Davies with Jackson 1993). In particular, the role that childcare provisions and work arrangements can have in facilitating parents' ability to manage or structure these potentially competing requirements has now become a focus of research and policy discussion (Department of Labour, NACEW, 1998; Ministry of Women's Affairs 1994; Podmore, 1994).

There is a limited body of literature showing the importance of formal and informal childcare provisions as key factors in facilitating parental participation in paid employment (Joshi 1986; Hillcoat-Nallétamby *et al* in press), with suggestion that New Zealand's recent increase in the proportion of mothers in employment with dependent children, reflects improved access to, and availability of, cost-effective childcare (Statistics New Zealand 1998).

Along with the importance of ECE and childcare arrangements in facilitating parental involvement in paid employment, is the role that flexible work arrangements may have in assisting parents to maintain a balance between potentially competing social, economic and domestic responsibilities (Presser, 1989). This has become a focus of concern particularly for women. Their increased involvement in paid employment in New Zealand is occurring in a context of reform of welfare and social assistance provisions, a central thrust to this policy orientation being to center the care of dependants primarily in the private sphere of the home.

New Zealand research accords with international findings on the specific nature of gender differences in parental employment patterns depending upon the age of children (Hillcoat-Nallétamby 1999; Ministry of Women's Affairs 1998; Joshi 1986), with clear indications that the presence of dependent children depresses maternal, far more than paternal, labour force participation (Callister 1995). There is also evidence of associations between parental employment status and key socio-cultural and economic factors, in particular differences by ethnic group and family type (Statistics New Zealand 1998; Dharmalingam *et al* 1997).

From the above findings, it is clear that parental labour force status, as well as being a function of market requirements, is intrinsically linked to a number of supply-side factors, including, the availability of formal and informal care arrangements, as well as being associated with micro-level individual and family characteristics. In particular, gender differences in labour force status have recently led researchers to distinguish systematically, maternal and paternal employment patterns.

Using data from the recently completed NACEW and Department of Labour childcare survey of 1998, this paper presents the results of exploratory statistical analysis of factors affecting current maternal employment status amongst families. Key explanatory factors include use of informal and formal childcare arrangements, demand for care and the use of work arrangements. Selected parent, child and family socio-cultural, economic and demographic characteristics are also taken as explanatory factors.

METHOD

Study population

The unit of analysis is the mother, giving an unweighted sub-sample study population of 3,674 females in parenting roles, including those from both sole and partnered families, and excluding male sole parent families. We use multivariate logistic regression models to analyse the relationship between *mother's* current employment status and the explanatory variables mentioned above. Analysis is based on weighted data (see Appendix) and the results are adjusted to reflect cluster sampling design effect.

Mother's current employment status and model specifications

The dependant variable, *mothers' current employment status* has been defined to distinguish three main study groups as indicated in Figure 1. The first compares mothers in the labour force with those who are not, by family type as solo or partnered families. The second group compares the employed and unemployed. The third distinguishes the full- and part-time employed mothers only, by family type and includes as an additional covariate, work arrangements.¹

Table 1 indicates the percentage distribution of mothers by the variables used as explanatory factors of their current employment status. They are grouped into four main categories; childcare arrangements; demand for care; work arrangements; socio-cultural, economic and demographic characteristics. Initial analysis showed that mother's age was strongly correlated with the number of dependent children. We thus decided to omit mother's age from the models, because interpreting the estimated coefficients for "number of dependent children" would be simpler and more straightforward than would be the case for the variable mother' age.

The use of formal and informal *childcare arrangements* is measured in terms of the main childcare arrangement for the youngest child in the family. The original response categories of the variables have been regrouped into seven main categories: 1) no childcare arrangements; 2) before/after school care programme; 3) childcare centre, organized home-based care; 4) Kohanga Reo; 5) public kindergarten; 6) playcentre, Pacific Islands ECC, playgroup; 7) family member paid and unpaid; 8) other person paid, and unpaid.² The rationale for this regrouping is based on a combination of frequencies for each category³ and the theoretical and substantive importance of a given category. Other variables pertaining to use of childcare included in the models are "*total cost*" and "*total hours of childcare*". Initial analysis showed that the variable "*total types of care*" was not statistically significant, so was dropped from the models.

The measurement of *work arrangements* as an indication of how mothers organize and structure their paid work has been derived using a combination of variables from the parent file.⁴ A new variable has been derived, which reflects collapsing of categories indicated in Table 7c(i) of the childcare survey report (NACEW and

¹ Work arrangement data are available in the survey only for those currently employed .

² As potentially significant differences might exist between paid and unpaid informal care, two classifications of the informal care categories were tested : Classification 1: family paid + family unpaid versus other paid + other unpaid; Classification 2: family + other paid versus family + other unpaid. Results were significant in both classifications. We however decided to use classification 1 because the p values (significance levels) seemed stronger in classification 1 than in classification 2.

³ Only five of the original response categories had more than 100 cases, so smaller categories had to be regrouped. We should like to thank the Department of Labour for their advice on this classification.

⁴ Variables : pwflexi; pwjshare; pwoncall; pwshift; pwoutwk; pwwkend; pwhomee; pweve; pwtakech; pwunpdlv; pwpaidlv; pwempcc; pwempcc; pwemppay; pwother; pwother2.

Department of Labour 1988:186). A work arrangements typology was constructed as follows: 1. *weekend/evening only*; 2. *shiftshare only*,⁵ 3. *shiftshare + weekend/evening*; 4. *shiftshare + home*; 5. *shiftshare + home + weekend/evening*. After running cross-tabulations to evaluate the prevalence of different combinations of work arrangements, the shiftshare proved the most prevalent type (use by nearly 50% of the sample). The variable therefore prioritizes the nature of the work arrangements as opposed to the total numbers or combinations of arrangements. Following on from other related works (Presser 1989), a distinction was made between “*Flexible working hours*” and other types of work arrangements as defined above. Thus, we have included “*Flexible working hours*” as a separate variable in our models.

For the purposes of this paper, *demand for childcare* as a factor associated with mother’s current employment status cannot readily be explored using questions in the parent questionnaire (Questions 53-58, etc.) because the universe they cover includes only those individuals declaring having encountered a problem with access to care arrangements *and* which also acted as a barrier to their participation in employment, unpaid work or study/training.

We have used three variables as proxies for access to childcare, which are derived from the responses to existing questions in the child file:

- 1) “*Would you like to go to XXX for more hours than he/she usually goes now?*”
- 2) “*Would you like to go to XXX at a different time than he/she usually goes now?*”.
- 3) “*Why isn’t XXX going for those hours now?*”
- 4) “*Why isn’t XXX going at that time now?*”.
- 5) “*Is there any type of care or educational arrangement that you would like he/she to use but which he/she is not using now?*”
- 6) “*Why is he/she not using XXX now?*”.

Questions 1-2 are used to derive a variable “*Unmet demand*” to establish whether mothers are currently experiencing difficulty accessing services due to insufficient or unsuitable hours and times. Information from questions 3-6 above is used to derive another composite variable, “*Reasons for unmet demand*”, which indicates the specific nature of problems that are prohibiting access to desired services.

RESULTS

Results from the multivariate logistic regression models are given in Table 2. We present the values of parameter estimates along with the corresponding test-statistics from the logistic regression models. The odds ratio in the reference category of each covariate is unity or one. Values greater than 1 indicate that the effect of an attribute is to increase the likelihood of the event occurring (in this case, the likelihood of being in a particular employment status), while values less than 1 indicate that the likelihood is reduced.

Model 1 provides the model estimates for partnered mothers of the *likelihood of being in the labour force* (ie either employed or available for work) according to a number of covariates or explanatory variables;

⁵ ‘Shiftshare’ is a combination of job sharing + working on call + shift work + outwork on piece rates as indicated in Table 7c(i) of the Childcare survey report, p. 186.

Model 2 provides similar estimates as those presented in *Model 1* but for solo mothers;

Model 3 gives the estimates of the *likelihood of being employed* (given that a mother is in the labour force) according to the explanatory variables;

Models 4 and 5 provide the *likelihood of being full-time employed*, for partnered and solo mothers separately, given that they are employed.

Childcare arrangements

We begin our description of multivariate results by indicating the relative associations between informal and formal care arrangements and current maternal labour force status. In terms of the actual types of childcare used, it is interesting that partnered mothers using informal care arrangements, in particular using a family member whether paid or unpaid, are twice as likely to be in the labour force as those not using any type of arrangement. Although statistically not significant, results for solo mothers also indicate a very similar relationship between participation in labour force and use of informal care.

The use of formal childcare arrangements does not seem to have any significant relationship with being in the labour force compared to those not using any childcare at all. On the face of it, this might seem odd, but the explanation may lie in the correlation between this factor on the one hand, and the cost and hours of childcare on the other. Because the estimated effects of greater number of hours and higher cost are strong and positive (see odds ratios in Panel I), we may infer these factors to reflect the effect of formal childcare arrangements. In other words, the type of formal care will be associated with particular time and cost structures; use of public kindergarten and playcentre for example, may entail using them less than 21 hours per week and hence costing less than NZ\$50 per week; the use of childcare centres on the other hand, will involve 22+ hours and over NZ\$100 cost per week. This is corroborated by the fact that when we did not have the cost and hours variables in the models, formal childcare arrangements involving childcare centre and homebased care had a significant and positive association with mother's likelihood of being in the labour force.

The results for solo mothers' childcare arrangements show that use of formal childcare increases by several times their likelihood of being in the labour force. (see the odds ratios for variable "*total cost of childcare*"). In fact, the relationship between the use of childcare and labour force participation is stronger for solo mothers than for partnered mothers.

The relationship between the use of childcare and *employment* is similar to that found for labour force participation. The use of any childcare arrangement is positively correlated with mothers' employment, although some results are statistically weak. The effect of using informal arrangements, that is a family member as a carer, is strong and positive. In other words, if a mother is relying on a family member for childcare she is highly likely to be either full- or part-time employed (more than five times as likely as those not using any childcare) rather than being unemployed. The use of Playcentre and Te Kohanga Reo arrangements also significantly associated with higher likelihood of maternal employment.

None of the informal or formal childcare arrangements has a significant relationship with full-time employment with the exception of use of childcare centre arrangements. Even this is not in the expected direction; those using childcare centre arrangements are about 60% less likely to be in full-time employment compared to those not using any arrangement (Model 4). However, if the cost of childcare per child exceeds NZ\$50 per week or the number of hours used per week is more than 7, then a mother is more likely to be in full-time employment. The negative effect of using childcare centre arrangements needs to be interpreted in conjunction with the total cost and total hours used. In fact, testing for interaction between childcare centre arrangements and number of hours used 22+ at the multivariate level indicated that there is an interaction between childcare centre use and number of hours used (results not shown here). The results showed that on balance, use of childcare centre is associated with higher likelihood of being full-time employed (by about 50%) for partnered mothers. For solo mothers, the type of main childcare arrangement, their hours and cost have no significant correlation with the likelihood of full-time employment.

Demand for care

Mothers who have reported wanting some change to existing care arrangements (see variables in Panel II) are as likely to be in the *labour force* as those who report not wanting any change to existing arrangements. However, if the reason for unmet demand is waiting list or lack of local services, then mothers are over one and a half times more likely to be in the labour force than those reporting no unmet need. With respect to employment, amongst mothers who are using some arrangement for their youngest child, those with unmet demand are several times less likely to be employed, than those who do not want any change. Moreover, those mothers who want some change to their existing care arrangements, are less likely to be in full-time employment and this is stronger both in magnitude and statistical significance for solo than partnered mothers. However, if they want change in existing arrangements for reasons of lack of local services or informal carer, it increases the likelihood of being in full-time employment amongst solo mothers only. If cost is the reason for wanting changes, then it decreases the likelihood of being in full-time employment for partnered mothers only.

These findings are generally consistent with conclusions drawn by Callister *et al* (1995) when summarizing issues of concern expressed by parents in paid employment, the key points being sufficient hours of quality of care, financial and geographic accessibility of childcare services.

Work arrangements

It is evident that any type of work arrangement is associated with higher likelihood of full-time employment among partnered mothers (see Models 4 and 5). However, for solo mothers work arrangements have no significant relationship with full-time employment with the exception of those using a combination of all work arrangements. The other work arrangement variable is whether mothers have used flexible working hours. Estimated parameters show that the use of flexible working hours is associated with a higher likelihood of working part-time. This is stronger for solo (odds ratio 0.70) than for partnered mothers (odds ratio 0.29).

Socio-economic factors

Having at least one child of pre-school age significantly reduces the likelihood of being in the labour force, being employed or full-time employed for both partnered and solo mothers (see Models 3 and 4; Panel III). For instance, partnered mothers with one child aged less than five are about four times less likely to be in the labour force than those who have only school-aged children (Model 1). The relationship becomes even stronger when there is more than one pre-school aged child: the likelihood of mothers being in the labour force decreases even more if they are ensuring parenting for two or more pre-school aged children. Although this pattern is generally true for solo mothers, they are nevertheless more likely than partnered mothers to be in the labour force if they have at least two pre-schoolers.

The likelihood of being in the labour force for solo mothers is reduced as the total number of children increases, which is not the case for partnered mothers. In fact, having two children increases the likelihood for partnered mothers by about 32% (Model 1) and having three or more children has no effect at all compared to those with only one child. The results for both child variables thus show that whilst having a child of any age reduces the likelihood of labour force participation for solo mothers, partnered mothers' labour force participation is reduced only if they have a child aged under five.

In general, census data has indicated that solo mothers with dependent children are less likely to be employed than partnered mothers with children, and a greater proportion with dependent children are more likely to be working full-time, once employed, compared to partnered mothers (Statistics New Zealand, 1993,1998). Our results confirm these findings: we find that solo mothers with at least one child are less likely to be employed than non-solo mothers. Furthermore, if the dependant child is aged under five, it decreases further the likelihood of being in employment for both solo and couple mothers.

Ethnicity of mothers does not have a differentiating effect on the likelihood of being in the *labour force* (an exception being solo Pacific Island mothers). However, ethnicity does play a significant role in determining maternal *employment*. An important result is that if one or both partners are Maori, they are over 50% more likely to be unemployed than if both partners or the solo mother are European.

While being of Maori ethnicity decreases the likelihood of being employed, the same does not apply when looking at full-time versus part-time employment. The likelihood of being full-time employed is about two times higher for mothers if both parents are Maori, than if both are European (Model 4). This relationship is of very similar nature when other ethnic combinations are compared with both partners being European. Ethnicity of the solo mother is not a discriminating factor in determining full-time employment (Model 5).

It is interesting that partnered mothers living in a multiple family situation are less likely to be in the labour force (although results are not statistically significant). An unexpected result, particularly for solo mothers, is that those living in Auckland are only half as likely as those living in other areas to be in the labour force than those living in Auckland.

The only individual level characteristic for mothers included in the models is her highest educational qualification. In general, the relationship between mothers' education and labour force participation is in the expected direction, that is the higher the level of education, the higher the likelihood of participation. Partnered mothers

with the highest level qualifications (tertiary/degree) are about 70% more likely to be in the labour force than those with a high school qualification (Model 1). Although the strength of the relationship is of very similar magnitude for solo mothers, it is not statistically significant (Model 2).

Although mothers' education is a strong differentiating factor for labour force participation among those with some level of schooling, it is not the case for employment status. While those mothers with no qualification are about 55% less likely to be employed than those with a high school qualification, there is no significant difference between high school qualification mothers and mothers with tertiary level qualifications (see Model 3). It is interesting that mothers' education does not have a significant influence on the likelihood of full-time employment

The results for partnered mothers are consistent with those found by Callister (1994). In examining the characteristics of partnered mothers in paid work during the first two years of a child's life he found that compared to mothers with no educational qualification, those with university qualifications were much more likely to be working when their infant was only one month old.

Partners' education however, has produced unexpected results. Mothers whose partners have a tertiary degree level qualification are over fifty per cent less likely to be in the labour force or employed than those whose husbands have high school qualifications (Model 1). In terms of husbands' employment status, mothers whose husbands are in part-time employment are about 65% more likely to be in the labour force than those whose husbands are in full-time employment. At the same time, the labour force status of the mother is not differentially related to whether the husband is in full-time employment or unemployed. However, if the husband is not in the labour force, the mother is approximately 30% less likely to be in the labour force (although statistically weaker) than those whose husbands are in full-time employment (see Model 1).

In terms of partners' employment status, it is interesting that if the partner is *in* the labour force as unemployed or part-time employed, the mother is over 50% less likely to be employed than those whose partners are full-time employed. It is also interesting that the chances of mothers being in full-time employment increase over three times (see Model 4) if their partners are either unemployed, in part-time work or not in the labour force. This is consistent with what was found from Census data (Statistics New Zealand 1993, 1994; also see Callister 1999). They are less likely to be part-time if their husbands are not in the labour force.

DISCUSSION

In this section of the paper we highlight key findings relating to a selected number of all factors explored, emphasizing key differences between partnered and solo mothers when possible: informal care, work arrangements, formal care, unmet demand, number and age of children, partner's employment status and ethnicity. We begin our discussion with the apparent association between informal care and mothers' employment status.

One of the main foci of this paper has been the relationship between informal care and maternal labour force and employment status. Results have shown that use of informal childcare arrangements are strongly and positively associated with labour

force participation and employment. This association may be interpreted as indicating the important role played by informal support in facilitating women's participation in the labour force and employment. Furthermore use of informal care arrangements provided by a *family* member as compared to *another person* is associated with A greater likelihood of either working or being available for work, for both partnered and solo mothers.

There is currently limited quantitative and qualitative research in New Zealand with which to compare these findings. Drawing on data from the 1995 NZW: FEE (Marsault et al, 1997), Hillcoat-Nalletamby et al (1998) studied the determining effect of a number of factors, including informal support resources, on mothers' likelihood of entry into employment following a last birth. Informal support was defined as coresidence of a non-nuclear family member or as presence of a partner/spouse in the household until the youngest child reached five years. Results indicated the former factor, but not the latter, to have a positive and significant effect on the likelihood of mothers taking up employment following the last birth.

International literature, on the role of informal support networks (family and extended kinship) in facilitating individual decision-making with regard to family formation, childrearing and work reinforces these findings. Studying the impact informal support resources play in influencing women's economic activity, Blau and Robins (1989) found that the presence of other adults in the household significantly decreased the rate of leaving employment, whilst simultaneously increasing the rate of having a birth whilst employed. These findings are attributed to the reduced costs of childcare represented by the presence of other adults in the household. Research completed in Japan (Ogawa and Hodge, 1994) on the supply of female labour and wage levels, showed the positive influence upon women's full-time labour force participation of patrilocality of residence, which ensured the availability of kin members for child care needs.

in the USA research has been completed on mothers with pre-school children and their perceptions of the constraining effect child care needs had on their labour force participation and family formation decisions (Oppenheimer-Mason and Kuhlthau, 1992). Of those mothers interviewed, almost one third had experienced problems with childcare that influenced their work at some point in their lives. The availability of relatives strongly influenced their perceptions of what constituted a childcare constraint to labour force participation. Those having access to surrogate carers in the home or nearby proved less likely to report having experienced a child care constraint to their work participation.

in sum, the existing New Zealand research corresponds with overseas findings in confirming the facilitating effect of availability of informal support on mothers' participation in employment. This notwithstanding, we still do not know whether the use of informal care corresponds to a choice or a necessity (NACEW and Department of Labour, 1999:32). Some parents may opt for informal, as opposed to other types of care because they perceive it to be of high intrinsic quality. others may have to rely on informal care due to the cost of purchasing formal care. further exploration of these issues could be developed through qualitative research.

The other main focus of this paper has been to examine the relationship between work arrangements and maternal employment status. All work arrangements, with the exception of "shiftshare and home" arrangements are very strongly associated with increased likelihood of full-time employment. Flexible working hours on the other

hand, is strongly associated with part-time employment, implying that flexible working hours provides a way of structuring work which facilitates part- as opposed to full-time work. This illustrates the need to link flexible working hours in a more structured way with full-time employment. Mothers will be more likely to develop work arrangements as a strategy to combine employment with childcare needs if they are working full-time. Working part-time does not therefore appear to require mothers to adopt more complex strategies for structuring of work arrangements.

New Zealand research completed on the theme of reconciling work place and family needs suggests that employers have yet to recognize the positive effects upon performance and productivity of employees that 'family friendly' workplace conditions may have (Ministry of Women's Affairs 1994; Callister *et al* 1995).

The results of this paper have indicated that Use of all formal types of childcare arrangements does not seem to have any relationship with the labour force status of mothers. However, those mothers who are using childcare facilities for longer hours (and as a result, are spending more on childcare costs), are highly likely to already be in the labour force. Thus, it would appear that what is more important for labour force participation is not whether someone is using formal arrangements per se, but rather the total number of hours of care used. Furthermore, childcare expenditure is a stronger predictor of solo mothers' labour force participation than for partnered mothers.

Given the strong relationship between labour force participation and cost of care for solo mothers, any policy measures taken to minimize the economic cost of childcare they encounter would have a greater facilitating effect in enabling them to participate in the labour force than would be the case for partnered mothers. It is also worth noting that those mothers who are in the labour force have reported problems of waiting list and lack of local services. Resolving these unmet needs could therefore be seen either as maintaining mothers' involvement in the labour force or increasing it.

As noted above, While mothers in the labour force report problems of lack of local services and prohibitive costs (in particular for partnered mothers), their participation in employment is limited by the need to make adjustments to existing arrangements, This is illustrated through the fact that they want more hours or a different time for the arrangement (in particular for those working full-time). Again, these results indicate the need for greater flexibility and availability of childcare arrangements amongst users of these services as a means of facilitating involvement in employment. These results are in line with findings from qualitative work completed in New Zealand by Podmore (1994). When investigating parental experience and views on labour force participation and childcare arrangements, her findings revealed that concern over financial circumstances was a key motivation for working, but that one of the major difficulties reported by mothers in combining childcare with work roles was finding appropriate child/care arrangements.

The results pertaining to total number of children show that solo mothers would need more support to enable them to be in the labour force than partnered mothers, but that both family types would benefit from childcare arrangements for pre-school children. It is likely that the negative effect of larger family size on labour force participation of mothers in couple families is mitigated by the presence of a partner and also the resources that may be available to this family type to facilitate the mothers' labour force participation.

For mothers whose partners are not in the labour force, while decreasing the likelihood of mothers being in the labour force, it increases the likelihood of being employed. This could be interpreted as showing husbands/partners choosing to be the "homemaker" and wives/partners taking on "income generating" work. The relationship between partner's labour force status and mother's labour force status could be due to a combination of both this factor (deliberate decision) and a non-choice factor (market constraints or personal physical constraints such as ill-health, etc.). Some indication may be taken from qualitative research completed in New Zealand on parental reasons for working which has clearly indicated economic necessity as being a key consideration (Podmore 1994). These findings may also be reflecting the increased likelihood of male unemployment (Callister 1999; Honey and Lindop 1997) or the possible shift in a gender-based division of labour participation in New Zealand, given the recently documented declines in male labour force participation rates for those in two-parent families, and the increasing proportion of partnered fathers with preschool children not in paid work (Statistics New Zealand, 1994).

Although ethnicity has not consistently emerged as a determinant of maternal labour force participation, it does play a significant role in determining maternal employment. In particular, partnered mothers in a Maori couple are more likely to be unemployed compared to European partnered mothers. This result is consistent with other findings based on the 1991 Census data (see Callister 1996).

CONCLUSIONS

It appears that for mothers in the labour force or in employment, their involvement is facilitated by their ability to rely on informal childcare arrangements. Were access to existing *formal childcare facilities* to be extended, then together these two sources of support might facilitate even further women's current commitment to participation in paid work.

We raise two implications of this conclusion for policy purposes. The first relates to implications for women's insertion into the labour force and for their lifetime earnings capacities. Comparative research in the European context examining mothers' forgone earnings in relation to childrearing and childcare costs – the earnings opportunity costs of having children -- has indicated that the public sector returns of subsidized childcare costs, in terms of their overall effect in increasing a woman's life-time earnings would be significant (Joshi and Davies 1994).

This is of major interest when considering retirement issues for women, and given the contemporary context of economic reform in New Zealand, which has been characterized by encouragement of greater market flexibility, and women's needs for job security, pay and employment conditions which take into consideration family needs (NACEW 1990). The increasing need for New Zealand to consider the retirement and superannuation needs of women is now, more than ever, at the forefront of policy debate (Marsault 1999). This concern has in part been spurred by the recognition in some fields, of the economic ramifications of macro-level changes in population age composition upon the maintenance of social assistance measures for forthcoming generations (Pool 1999; Koopman-Boyden *et al* forthcoming). Coupled with this are the clear gender differences in survivorship probabilities which in New Zealand as elsewhere, lead to a much greater likelihood of women surviving

longer than men, with ensuing needs for financial, social and economic support (Pool 1985). For these reasons in particular, the more indirect outcome of the use of childcare facilities in increasing women's lifetime earnings and overall labour force participation is an important consideration for long-term planners.

Secondly, although the analysis completed here does not directly relate to the following issue, the findings on mothers' employment in relation to fathers' employment seem to contribute to the broader theme of shifts in the gender division of labour. It is therefore appropriate to situate the results of the present paper in the broader perspective of long-term changes in values and attitudes pertaining to the family as a unit of production and reproduction. We suggest the need to consider the possibility of a gradual shift away from the classic gender division of household labour, to a more 'gender equity' based form of domestic organisation.

One indication of how parents may increasingly be taking on board the responsibilities for the economic, social and emotional well-being of their children is by documenting how they reorganise the way work has been informally allocated across the genders. This is one of the questions currently being explored for its policy implications in New Zealand with the completion of the Time Use Survey (Fleming and Spellerberg 1999). Taking the example of reconciling work with family, the types of policy questions these changes raise is whether policy makers will in the future, recognise the family's attempts to combine reproductive with productive functions based on a non-gender specific model.

If this thesis stands the test of time and longer term trends confirm the changes in the gender division of unpaid and paid work, then policy makers will be considering how best to support parents as they respond, at the micro-level of the family to accommodating the economic and social implications of macro-level processes of change such as unemployment or reduced social and financial securities.

Appendix

A specific weighting scheme was applied for the completion of data analysis presented in this paper. The weights supplied with the original data files give figures that inflate the sample size to be an estimate of the total population. To avoid the problems associated with very large sample sizes for statistical inference purposes, we modified the original weights using the formula: $w_{(adj)} = (w_{(i,final)} * n/N)$ (ie. final weight $*(3,809/432,421)$). The n in the adjustment formula used is 3,809 which stands for the number of families participating in the childcare survey.

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Table1: Percentage distribution of mothers by main childcare arrangements, access, work arrangements and socio-cultural, economic and demographic factors

		Labour Force N=2100	Non-Labour Force N=1571
I CHILDCARE ARRANGEMENTS		%	%
Main type of childcare arrangements used for youngest child			
	None	55.4	67.2
Informal :	Family member (paid + unpaid)	12.6	5.5
	Other person (paid + unpaid)	8.3	2.3
Formal :	Before/after school care programmes	3.2	0.7
	Childcare centre + homebased care	10.4	7.1
	Public kindergarten	5.2	7.1
	Playcentre + Pacific Island + Playgroup	3.7	8.1
	Te Kohanga Reo	1.2	2.0
Total cost of Childcare per child per week (of those who receive care) (dollars)			
	No cost	32.2	28.5
	1-10	21.5	43.7
	11-50	20.8	22.8
	51+	25.5	5.0
Total number of hours of Childcare used per week			
	None	51.5	57.9
	1-6	12.0	12.5
	7-12	10.4	11.3
	13-21	10.6	10.6
	22+	15.5	7.7
II DEMAND FOR CARE			
Unmet demand			
	No change required	91.5	90.7
	More hours required	4.7	6.2
	Different times required	3.8	3.1
Reasons for Unmet demand			
	No change wanted	84.0	84.1
	Waiting list + lack local services ⁶	9.1	8.1
	Cost	3.8	5.1
	Lack of informal carer	1.9	1.4
	Other ⁷	1.2	1.3
III WORK ARRANGEMENTS		Employed	
Work Arrangements			
	Shiftshare		44.1
	Weekend/evening		7.5
	Shiftshare + Weekend/evening		10.0
	Shiftshare + Home		9.9
	Shiftshare + Home + Weekend/evening		21.4
	None		7.1
Flexible working hours			
	Yes		39.5
	No		60.5

⁶ Also includes transport difficulties

⁷ Includes lack of culturally appropriate services and lack of age appropriate services

Table 1 continued

IV SOCIO-ECONOMIC FACTORS		%
Total number of children aged <5 years	None	49.6
	One	36.2
	Two	14.2
Total number of children	One	40.8
	Two	38.6
	Three	15.1
	Four+	5.5
Family type	Couple/solo	96.5
	Multiple	3.5
Ethnicity	Father & mother European	67.5
	Father & mother Maori	15.1
	Mother Maori & father European	2.9
	Mother Pacific Is & father European/other	6.9
	Mother Other & Father European	7.6
Family income (dollars)	<21,000	23.5
	21-30,000	14.8
	31-40,000	14.5
	41-50,000	11.8
	Over 50,000 per year	35.4
Place of residence	Auckland	29.4
	Other urban	50.8
	Rural	19.8
Mother's highest educational qualification	No qualification	23.8
	Secondary	28.2
	Tertiary – other	37.4
	Tertiary – Bachelor/Post Graduate	10.6
Partner's education	No qualification	20.3
	Secondary	20.4
	Tertiary – other	44.7
	Tertiary – Bachelor/Post Graduate	14.6
Partner's employment status	Full time	79.7
	Part-time	4.1
	Unemployed	5.3
	Not in Labour Force	10.9
Mother's union status	Solo	20.7
	Partnered	79.3

Table 2: Estimated coefficients from logistic regression models

		In Labour Force		Employed vs unemployed Model 3	Full-time vs part-time (partnered) Model 4	Full-time vs part- time (solo) Model 5
		Partnered Model 1	Solo Model 2			
I CHILDCARE ARRANGEMENTS						
Main type of arrangements for youngest child						
	None	1.00	1.00	1.00	1.00	1.00
<i>Informal:</i>	Family member (paid + unpaid)	1.98*	2.63	5.50*	0.91	7.17
	Other person (paid + unpaid)	1.54	1.88	3.83†	0.85	25.40
<i>Formal:</i>	Before/after school care programmes	1.34	2.05	1.21	1.31	5.15
	Childcare centre + homebased care	1.21	0.89	2.76	0.38*	9.14
	Public kindergarten	0.96	1.58	2.91†	0.67	4.61
	Playcentre + Pacific Island + playgroup	0.84	0.55	2.78†	1.71	37.21
	Te Kohanga Reo	1.00	1.58	3.29	1.09	6.42
Total cost per child per week (dollars)						
	No cost	1.00	1.00	1.00	1.00	1.00
	1-10	1.06	1.65	1.29	0.59†	2.50
	11-50	1.18	2.66*	1.67	1.15	3.50
	51-100	2.17*	7.12*	1.85	1.78†	2.09
	101+	4.76*	51.93*			
Total number of hours per week						
	1-6	1.00	1.00	1.94	1.00	1.00
	None	0.85	1.62		0.92	1.00
	7-12	1.47†	0.80	1.24	1.93*	0.85
	13-21	1.45†	1.83	1.84	1.82*	0.45
	22+	2.91*	1.34	2.36	3.40*	-
II DEMAND FOR CARE						
Unmet demands						
	<i>No change required</i>	1.00	1.00	1.00	1.00	1.00
	More hours required	0.74	0.66	0.35*	0.53†	0.08†
	Different times required	0.98	0.77	0.22*	0.83	0.05†
Reasons for unmet demand						
	<i>No change wanted</i>	1.00	1.00	1.00	1.00	1.00
	Waiting list + lack local services	1.60*	2.26*	1.63	1.03	4.05†
	Cost	1.75†	0.85	0.92	0.40*	2.47
	Lack of informal carer	0.93	3.21	1.05	1.60	78.94*
	Other	0.75	3.15	0.98	0.68	2.12
III WORK ARRANGEMENTS						
Normal work arrangement						
		-	-	-	1.00	1.00
	Shiftshare	-	-	-	3.86*	1.67
	Weekend/evening	-	-	-	2.86*	2.22
	Shiftshare + Weekend/evening	-	-	-	3.44*	2.71
	Shiftshare + Home	-	-	-	1.52	1.04
	Shiftshare + Home + weekend/ evening	-	-	-	4.77*	6.82*
Flexible working hours						
	No	-	-	-	1.00	1.00
	Yes	-	-	-	0.70*	0.29*

Table 2 continued on next page

Table 2 continued

	In Labour Force		Employed vs unemployed Model 3	Full-time vs part-time (partnered) Model 4	Full-time vs part- time (solo) Model 5
	Partnered Model 1	Solo Model 2			
IV SOCIO-ECONOMIC FACTORS[§]					
Total number of children aged <5years					
None	1.00	1.00	1.00	1.00	1.00
One	0.25*	0.38*	0.53*	0.56*	0.49
Two+	0.09	0.24*	0.25*	0.32*	0.89
Total number of children					
One	1.00	1.00	1.00	1.00	1.00
Two	1.32*	0.67*	1.12	0.66*	0.68
Three	0.97	0.41*	1.01	0.61*	0.12*
Four+	1.08	0.46†	1.29	0.44*	0.78
Family type					
Couple-solo	1.00	-	1.00	1.00	-
Multiple	0.69	-	1.41	0.75	-
Ethnicity					
Father & mother European	1.00	1.00	1.00	1.00	1.00
Father & mother Maori	0.87	-	0.44*	1.91*	-
Mother Maori & father European	0.84	0.91	0.49	1.49	1.80
Mother Pacific Is & father European/ other	1.18	2.23*	0.75	6.81*	1.32
Mother Other & Father European	0.86	0.71	0.63	2.43*	3.71
Place of residence					
Auckland	1.00	1.00	1.00	1.00	1.00
Other urban	1.15	1.98*	0.78	0.76†	0.87
Rural	1.20	2.29*	1.52	1.12	1.11
Mother's highest educational qualification					
Secondary	1.00	1.00	1.00	1.00	1.00
No qualification	0.68*	0.99	0.44*	1.09	0.90
Tertiary – other	1.37*	1.68*	0.69	1.25	1.26
Tertiary – Bachelor/Post Graduate	1.70*	1.87	0.74	1.42	0.16*
Partner's employment status					
Full time	1.00	-	1.00	1.00	-
Part-time	1.65*	-	0.79	3.15*	-
Unemployed	0.97	-	0.31*	3.83*	-
Non Labour Force	0.70	-	0.99	4.77*	-
Partner's educational qualification					
Secondary	1.00	-	1.00	1.00	-
No qualification	1.06	-	0.75	0.89	-
Tertiary – other	0.76†	-	0.91	0.85	-
Tertiary – Bachelor/Post Graduate	0.44*	-	0.24*	0.53*	-
Solo mothers	-	-	0.44*	-	-

* p<0.05 † p<0.10

§ Variable family income was included in the model but the results are not presented here

Figure 1

