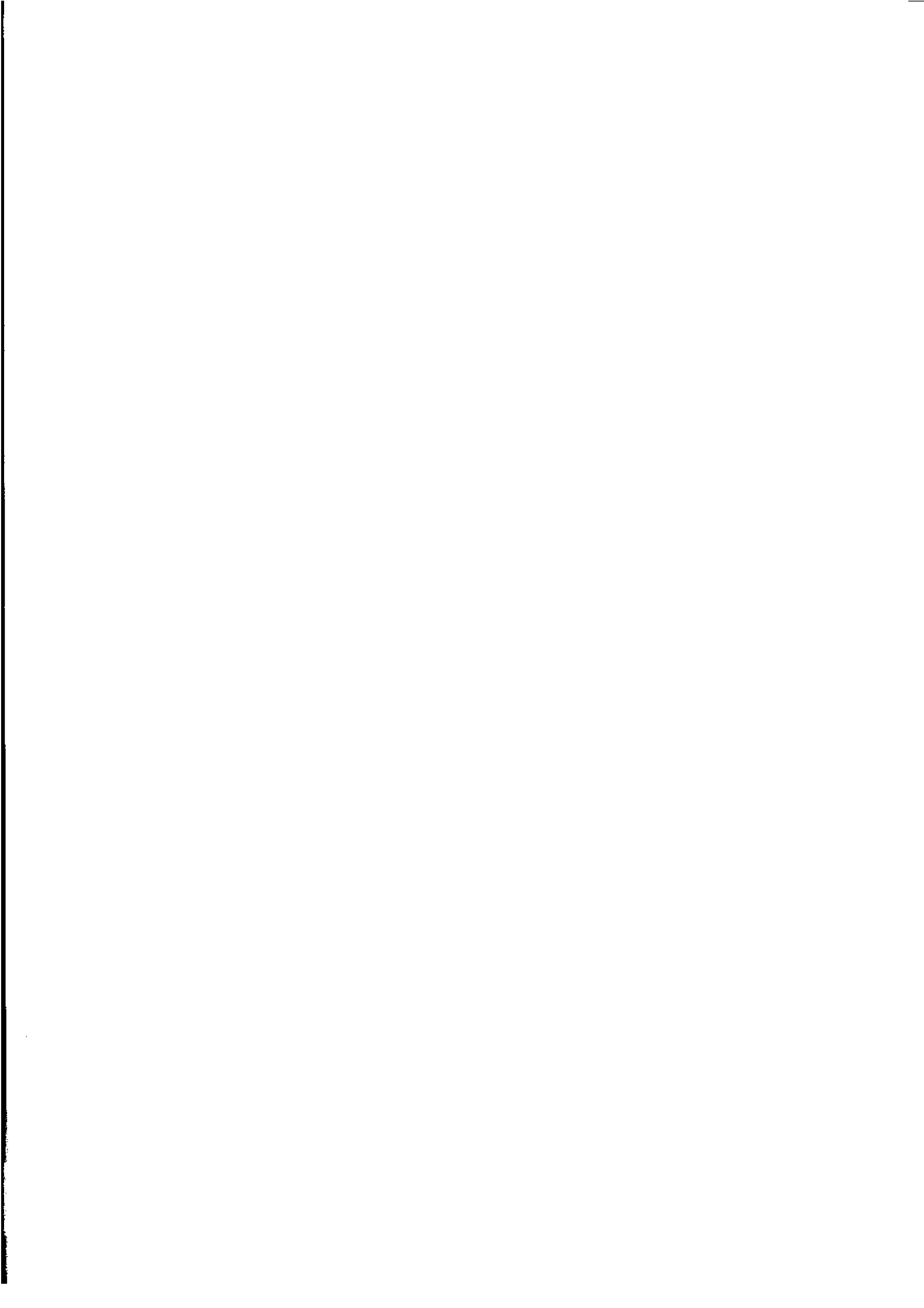




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RECENT CHANGES IN UNPAID WORK

by

Michael Bittman

AUSTRALIAN BUREAU OF STATISTICS

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MICHAEL BITTMAN

APRIL 1995

Preface

This occasional paper was written by Michael Bittman, University of New South Wales. It is based on a detailed analysis of Time Use Surveys conducted in 1987 and 1992 undertaken when Michael Bittman was a Research Fellow at the ABS.

The ABS objectives for the Research Fellowship Scheme are to encourage greater use of ABS data in academic and other research, to encourage the development of new analytical techniques for the analysis of data and to increase the general level of research into problems relevant to the ABS.

The conclusions drawn and observations made by Michael Bittman are his own, and do not necessarily represent the views of the Australian Bureau of Statistics.

This occasional paper aims primarily to describe some important changes occurring within Australian households. It deals chiefly with those activities in which households take raw materials and domestic capital, and through their own labour produce goods and services of greater value. Much of the output of these activities is consumed by the household itself. For the purposes of this paper the household production just described will be called 'unpaid work'

This paper is intended as one in a series of occasional papers arising out of the Australian Bureau of Statistics Research Fellowship Project. All these occasional papers will be based on the analysis of Australian time use surveys. Other papers in the series will deal with the topics of the social organisation of unpaid work in Australia; changing relations between household productive activities and the market; and some methodological questions connected with the measurement of how time is used.

Any detailed enquiries about his analysis should be directed to Michael Bittman, School of Sociology, University of New South Wales, Sydney 2052. Any requests for data from the 1992 Time Use Survey should be directed to Elisabeth Davis (06 252 7430)

WHAT IS UNPAID WORK AND WHY IS IT IMPORTANT?

Unpaid work is considered work because it is an activity that combines labour with raw materials to produce goods and services with enhanced economic value. Because most unpaid work consists of households producing goods and services for their own consumption and no cash changes hands, these unpaid work activities are not captured by conventional measures of economic activity, such as the system of National Accounts, which are designed to measure market activity (Ironmonger 1993; Waring, 1988; Chadeau, 1992, Goldschmidt-Clermont, 1991)

In deciding what household activities shall count as productive activities, economists have relied on the 'third party criterion'. According to this criterion, productive activities generate goods and services that could have been provided by some other economic unit, for example, cooking, cleaning, child care and mowing the lawn are productive activities because you could pay someone else to do these tasks for you. Describing these activities as 'tradeable' is an alternative way of expressing the same idea. The 'third party' test excludes non-productive, leisure and personal activities because it makes no sense to have someone else sleep for you or watch television for you and so on (Hill, 1979).

The Multinational Time Use project, under the directorship of Alexander Szalai, standardised the classification of activities in the 1960s (Szalai, 1972). This makes possible the analysis of unpaid work across nations and over time (Harvey, 1993:197-228).

Following these 'standard' principles of classification and applying the 'third person criterion', the following household activities are regarded as unpaid work:

HOUSEWORK	CHILD CARE
(110) Food preparation and clean up	(211, 221) Physical care and minding of own and other children
(120) Laundry, ironing and clothes care	(212, 222) Care for child, sick or with disability (own and other children)
(130) Other housework (chiefly cleaning and tidying)	(213, 223) Teaching own and other children
OUTDOOR HOUSEWORK	(214, 224) Playing with own and other children
(141) Garden, lawn and pool care	(280) Travel associated with child care
(142) Pet/animal care	SHOPPING
(143) Home maintenance and car care	(310, 320) Purchasing goods and services
MISCELLANEOUS DOMESTIC ACTIVITIES	(380) Travel associated with purchasing goods and services
(144) Household management (paying bills, doing paperwork, etc.)	
(150) Transporting adult household members	
(180) Travel associated with any of the above activities	

The number in brackets beside the activity description corresponds to the activity codes used by the Australian Bureau of Statistics in their study of time use in Sydney, May-June 1987 (Australian Bureau of Statistics, 1988). Bold headings indicate the groupings of unpaid activities which are commonly used in this paper. In what follows, the activities

listed above are taken to constitute the operational definition of household productive activities, and hence of 'unpaid work' as it is conventionally understood¹.

How change in unpaid work has become an important public matter

The remarkably popular commentator Hugh Mackay lists in his book, *Reinventing Australia*, some major changes in Australian society - immigration and the end of Anglo cultural hegemony; the passing of full employment and the widening gulf between rich and poor; the credit card boom and the end of saving; and the revolution in gender roles and family relations. Of all these changes Mackay says: 'There is no doubt about which redefinition of the last 20 years has had the most impact: it is the redefinition of gender roles'. 'It is sobering to remind ourselves', says Mackay, 'that we only have to go back as far as the mid-1970s to realise that a revolution of breathtaking speed has taken place in Australian women's view of themselves - and, by implication, in their view of men' (Mackay, 1993: 24).

In the course of this change the division of unpaid work in the home has moved from what C. Wright Mills called a private 'trouble' to a public 'issue' (1970:14-17). The last two decades has seen the rise of Women's Units within State and Federal Bureaucracy; the introduction of Anti-discrimination, Equal Employment Opportunity and Affirmative Action legislation; as well as the establishment of tribunals and government agencies to administer and monitor this legislation. Recently the Inquiry into Equal Opportunity and Equal Status for Women by the House of Representatives Standing Committee on Legal and Constitutional Affairs (chaired by Michael Lavarch), the International Labour Organisation² and the United Nations³ have all urged that account be taken of these 'domestic' activities.

Change - some theoretical interests

Taking the ferment surrounding these issues as a symptom of change, a variety of competing interpretations of the contemporary position have been advanced. Three major themes have dominated the discussion -- (a) gender equity, (b) technological change and (c) demographic change. A brief introduction to each of these themes follows.

(a) In relation to gender equity there has been speculation that either a shift in social norms, the large scale entry of women, especially married women, into the paid labour force⁴, or a combination of the above is responsible for a whole series of social repercussions, including the reorganisation of the domestic division of labour (Mackay, 1993; Gershuny and Robinson, 1988; Young and Willmott, 1973). If women now share the formerly 'masculine' role of breadwinner with men, then to many it seems plausible that men must also share the formerly 'feminine' role of homemaker. The same logic explains why new words like 'parenting' displace older terms like 'motherhood'. This approach infers that there has been an upheaval in norms for gender roles and the expectations that flow from them. It is presumed that belief has repercussions for behaviour and that clear

evidence of this trend will be found in the convergence between the time men and the time women allocate to domestic labour.

(b) For most of this century the domestic household has been the subject of concentrated technological change. In the period under investigation dwellings were electrified, running water connected, toilets and bathrooms moved inside. Gas or electric ranges replaced fuel stoves. 'Set and forget' automatic washing machines supplanted the washboard, the copper and the mangle. Steam irons displaced flat irons and starch. Some synthetic fabrics, introduced in this period, required no ironing at all. Carpets were vacuumed and no longer beaten by hand. And the list goes on, even if we restrict ourselves to only those technological innovations that are found in practically every household today. Summarising the significance of these changes, the American social historian Ruth Schwartz Cowan says: 'The change from the laundry tub to the washing machine is no less profound than the change from the hand loom to the power loom' (1985: 186).

As a consequence of this veritable 'industrial revolution in the home', some authors have claimed that household appliances have so drastically reduced full-time housewives' labour that the social role of full-time housewives has lost its meaning. In search of relief from their suburban boredom, housewives have turned either to the labour market or tranquillisers (Cowan, 1985: 181-2). In this technologically determinist view of social change, innovations in domestic appliances compel normative changes and not the other way around⁵.

(c) Demographers have argued that in Australia, as in the rest of the Euro-American world, a major transition to smaller families began in the later half of the nineteenth century. This major demographic trend, it is claimed, lies at the heart of household change. The long term fertility decline was temporarily reversed by the post war 'baby boom'. The post war increase in fertility has been attributed to a 'marriage boom' - a pattern combining high rates of marriage with an early age of marriage (Hugo, 1992: 7-8). According to Graeme Hugo, the so-called 'baby bust' in Australia began in the early 1960s. Between 1961 and 1984 the Total Fertility Rate (TFR) fell from 3.55 to 1.84 children in the average completed family (Hugo, 1992: 8). Although the TFR has not continued its decline since 1984, the fertility of the generation of women currently of child-bearing age is expected to be roughly half that of their mothers. Moreover, there have been important shifts in age specific fertility rates. The outcome of these changes has been to compress the span of child bearing years and more recently to postpone it. The preponderant age for child birth (accounting for over 62% of all births) has shifted from 20-29 year old women to 25-34 year olds over the last twenty five years.

According to the demographic theory of household change, as women were liberated from a life of child-bearing and housework by later marriage, the contraceptive pill and increased education, they began to storm the labour market. Control over fertility provided women with opportunities previously unavailable to them and the result has been a revolution in family and household organisation (Young, 1990).

Each of these approaches predicts a variety of changes in the way women and men organise their relations and allocate their labour. Such has been the speed of change in the sphere of social life that theories and conclusions have tended to run ahead of solid information. Recently this situation has, to a large extent, been rectified by the collection of the first ever national data on time use in Australia. Time use material lays many of the competing suppositions and assumptions of these theories open to examination for the first time.

This paper reports on the comparison of the 1987 and 1992 time use surveys. Occasional use is made of a 1974 survey conducted on behalf of the Cities Commission. The early Cities Commission survey employed a different survey design and activity classification, while the later surveys conducted by the Australian Bureau of Statistics shared a similar design (except in geographic and seasonal scope, see below) and a self-consciously comparable activity classification. The greatest level of certainty relates to changes between the 1987 and 1992 surveys and major emphasis in this discussion falls on this period.

THE SOURCES AND NATURE OF THE DATA

Time use surveys ask respondents to complete a diary of their daily activities. The time use survey aims to record the duration of every activity undertaken in the course of a day. This provides information on what time a household allocates to work, rest and play. In addition to collecting information on what time is devoted to market activities (information also collected by the Labour Force Survey) the Time Use Survey collects information about the time devoted to unpaid household productive activities. By engaging in unpaid household production individuals produce and exchange goods and services of value.

Time use surveys have been conducted since the early decades of this century but a major advance accompanied the comparative study of time use in 13 nations, conducted under the directorship of the Hungarian statistician Alexander Szalai (Szalai, et al: 1972). The key legacy of the 'Szalai study', as it has become known, was that it standardised activity classification. To this day activity classifications used by major statistical organisations either use the Szalai activity categories directly or have developed classifications derived from it. This has opened the way for comparison - both cross-nationally and over different historical periods.

Australia's first publicly sponsored time use survey was conducted on behalf of the Cities Commission in 1974. This study was designed to compare time use in a regional growth centre (Albury-Wodonga) with time use in large metropolitan city (Melbourne). The final sample yielded 1,492 one-day diaries from respondents, divided fairly evenly between Melbourne and Albury-Wodonga. Interviews were conducted between March and September and activities were classified according to the Szalai 99 activity code.

In his parliamentary statement outlining the National Agenda for Women in November, 1985, the Prime Minister, Bob Hawke announced that the Australian Bureau of Statistics would conduct a major time use survey in 1988. As this was a new kind of survey for the Bureau, a range of different collection methodologies were tested, culminating in a large-scale pilot survey in May-June, 1987, in the city of Sydney, with published results. This survey was weighted to 1981 census population benchmarks and collected two diary days for all respondents over 14 years of age, and had a completed sample size of 3,181 diary days.

Following evaluation of the pilot survey and of user demand for this kind of information, the Australian Bureau of Statistics conducted a national survey in 1992. The national survey was collected at four separate periods (with the aim of neutralising seasonal variation) over the calendar year. Once again the two-day diaries for all persons in the households over the age of 14 years were collected. Only those living in private dwellings were eligible for selection in the sample. Diplomats, overseas visitors and overseas service personnel stationed in Australia were excluded from the scope of the survey. The final national sample contained 13,937 diary days. Although a more refined 75 activity code was developed for the 1992 survey, care was taken to maintain the possibility of aggregation to the 57 activity code used in Sydney 1987 (Australian Bureau of Statistics, 1993b).

CHANGE - SOME METHODOLOGICAL CONSIDERATIONS

The existence of such surveys taken at two or more points in time is the social science equivalent of the Hubble space telescope. They enable an unparalleled glimpse of the social and economic universe, and promise to contribute to answers to the big questions like the structure of the universe and how it is changing. Like the Hubble, however, this instrument needs some correction to its lens before a clear picture can be obtained and its potential fulfilled.

The chief defect to be corrected is lack of comparability between the surveys. Examination of the 1992 data shows that both region and quarter have an effect. As might be expected, time use in rural and in urban settings are significantly different (by as much as 3 hours 42 minutes for the activities related to paid work of men, $P < .005$). The quarters differ greatly as well, partly because some quarters take in school holidays in all or some states. In Quarter 3 the women's paid work related activities were 2 hours 10 minutes a week lower than in Quarter 2. The difference in average time spent in any particular activity between the 1992 national survey and the 1987 pilot survey of Sydney may therefore be a reflection of regional and seasonal factors rather than an indication of genuine change. To talk confidently about the changing use of time in Australia, it is necessary then to compare like with like - Sydney, May-June with Sydney, May-June.

Standardisation to Sydney May-June

The simplest way to standardise would be to select from the total 1992 sample only those observations from Sydney, May-June. Unfortunately owing to some miscommunication in field operations, which resulted in only half the planned cluster for May-June in New South Wales being sampled, this restriction has a particularly drastic effect. Restricting the sample in this simple way reduced the sample size from 13,937 diary days to 301 diary days. When the sample is further divided into men and women, the sample size for each gender is 142 and 159 person days respectively. This sample size is simply too small to produce reliable estimates, let alone to permit more complex analysis.

It was therefore necessary to develop a method of making synthetic estimates of Sydney, May-June. This was done by specifying an ordinary least squares linear regression model, with dummy variables for region and season. The dummy variables take the values one or zero. There were four regional dummy variables representing Melbourne, Other Capital Cities, Other Urban Centres and Rural Areas using standard Australian Bureau of Statistics criteria. For an example of how the regional dummy variables work, consider an observation in Melbourne. The dummy variable would have the value of one and the other three regional dummy variables would have the value zero. For an observation in Sydney, all four regional dummy variables would have the value of zero. Similarly an observation in Quarter 3 is scored one for Quarter 3 and zero for all other quarters.

Mathematically this model can be expressed in its conceptual form as:

$$\gamma = \beta_0 + \sum_{i=1}^4 \beta_{region_i} \delta_{region_i} + \sum_{i=1}^3 \beta_{season_i} \delta_{season_i}$$

Where γ stands for the time spent in a particular activity, β_0 a constant, β_{region_i} a coefficient expressing the effect of the regions when the season held constant, β_{season_i} a coefficient representing the effect of the seasons when region is held constant, and δ_{region_i} and δ_{season_i} are the dummy variables. The operational form of the model, using dummy variables, upon which this paper is based, can be mathematically expressed as:

$$\gamma = \beta_0 + \beta_{Melbourne} \times dummy_{Melbourne} + \beta_{other\ capital} \times dummy_{other\ capital} + \beta_{other\ urban} \times dummy_{other\ urban} + \beta_{rurals} \times dummy_{rural} + \beta_{quarter\ 1} \times dummy_{quarter\ 1} + \beta_{quarter\ 3} \times dummy_{quarter\ 3} + \beta_{quarter\ 4} \times dummy_{quarter\ 4}$$

This form of the equation estimates separate coefficients for each of the region and season dummy variables. These coefficients are expressed relative to a reference variable which is omitted from the equation. In the equation above this means that the effect of the observations being sampled in Melbourne is expressed relative to Sydney. The estimate for Melbourne expresses the difference between Sydney and Melbourne as a definite quantity of time. The same applies to each of the other region dummy variable coefficients. When all of the region dummy variables in the equation take the value zero (i.e. when the

observation must be Sydney) the only coefficient which is not zero is the constant. The seasonal dummy variables are specified and interpreted in a similar fashion, with all quarter dummy variable effects being expressed relative to the omitted variable - Quarter 2.

The advantage of this method is that the equation not only produces estimates of the effects of various regions and seasons but also that these are expressed relative to Sydney, May-June (Quarter 2). Using this method it possible to estimate whether the time spent in particular activities in Melbourne and other regions differs from Sydney, and to estimate the variation among the quarters.

Most importantly the constant term (β_0) estimates the time spent in the particular activity for Sydney, May-June. Using this method harnesses the power of the full national sample to estimate the value for the region and season in question, so that the estimate for Sydney, May-June has much lower standard errors (is more accurate and stable) than if the sample were simply restricted to that location in that quarter. The values for time spent in various activities for 1992 cited in this Occasional Paper are standardised estimates for Sydney, May-June produced by this method.

Of the three time use surveys, the 1974 Cities Commission data is in many ways the most difficult to make comparable. It is the smallest sample and has no Sydney component to its sample. What needs to be established before using this material in a comparison with the Sydney, May-June standard, is that there is a possible strategy of comparison. There is only one sample which contains time use data for all regions of Australia - the 1992 Time Use Survey. An analysis of Melbourne and Sydney from the 1992 Survey showed that for almost all unpaid work activities, the time each sex spends in each task is not significantly different ($p < .05$)⁶. It is assumed that if Melbourne and Sydney are very similar in 1992 then it is highly likely that they were very similar in 1974. The remaining problem is what to do about the observations from Albury-Wodonga. Using a similar technique that was employed to standardise the 1992 national sample, the data from Albury-Wodonga was standardised to Melbourne. In relation to seasonal variation it was assumed that because the March to September collection period overlapped the May-June Quarter, despite less than perfect comparability, and provided that the data was handled carefully, it would produce information which would assist in determining questions about the direction of economic and social change, its strength and its pace.

An independent check on the accuracy of the synthetic estimate was conducted by comparing the diary estimate of time spent in paid work against data from the Labour Force Survey. The literature (Robinson and Gershuny, 1994) suggests that diary-based estimates of (paid) working time may be systematically different from the estimates derived from the standard Labour Force question about 'hours worked last week'. These checks were also conducted for 1987 where no synthetic estimates were involved. A full report on this comparison can be found in the Occasional Paper entitled *How to Measure the Use of Time: A Comparison of the Validity and Reliability of Methods for the Measurement of the Use of Time*. Briefly, these checks show that patterns of change in (paid) working time revealed by both methods were reassuringly similar. Where the diary

estimates differed significantly from the Labour Force Survey estimates both the natural and the synthetic estimates varied in a similar fashion.

GENERAL OVERVIEW OF CHANGES IN UNPAID WORK

Labour economists have long known that industries and occupations are sex segregated (Mumford, 1989; Power, 1975a; Power, 1975b). Men and women are disproportionately represented in particular industries and occupations. On the whole men and women in Australia do not work in the same industries in the same jobs and it is meaningful to talk about 'men's jobs' and 'women's jobs'. The time devoted to tasks which comprise household productive activities can be analysed in a similar fashion. Most unpaid tasks around the house appear to be classified as either 'men's work' or 'women's work'. Australian women, on the whole, are responsible for 'indoor' housework such as cooking, laundry, cleaning and the physical care of children, while men are responsible for the 'outdoor' tasks like lawn, garden, pool and pet care, and for maintaining the home and the car. Shopping and playing with children are the activities most likely to be gender neutral, although in all these cases women spend more time in these activities than men.

Iiris Niemi, of the Central Statistical Office of Finland, has devised a 'sex equality ratio' to measure the extent of segregation (Kirjavainen 1989, Kirjavainen et al 1992). Equality ratios are calculated by dividing the mean time spent by women in a particular activity by the mean time spent by men in the same category of time use. Given a commitment to equal sharing of unpaid work the 'optimal' equality ratio would be one. A number higher than one implies that women do a disproportionate share and a number lower than one implies that men do a disproportionate share.

The seven unpaid work tasks presented in Table 1 are ranked according to the total average time devoted to them by both men and women in 1992. The outdoor or 'masculine' jobs, with an equality ratio of less than one, rank sixth and seventh, while tasks of every other rank have an equality ratio of more than one, that is, are disproportionately done by women.

Comparing the standardised 1992 and 1987 figures it is apparent there have been some changes in the equality ratios over the five years between these surveys. The largest shift has come in laundry time. Although laundry remains the most extremely sex segregated activity, it is also the activity which shows the greatest apparent improvement in equality ratio. The other changes in equality ratio are fractional and only 'feminine' activities surrounding the production of meals and the 'masculine' activities of home maintenance and car care show a reduction of the segregation ratio greater 0.1.

**TABLE 1: COMPARISON OF SEX EQUALITY RATIOS IN UNPAID WORK TASKS
1987-1992
(STANDARDISED TO SYDNEY, MAY-JUNE)**

Activity (Rank by Size in 1992)	Sex Equality Ratio	
	1987	1992
(5th) Laundry, ironing & clothes care	9.0	7.5
(4th) Other housework (cleaning)	4.2	4.1
(3rd) Child care	3.6	3.6
(1st) Food & drink preparation, clean up.	3.1	2.9
(2nd) Purchasing goods and services (shopping)	1.5	1.6
(6th) Gardening, lawn and pool care etc.	0.5	0.5
(7th) Home maintenance & car care	0.1	0.3

The continuing strength of the segregation between 'men's jobs' and 'women's jobs' in unpaid work is very conspicuous. Women work seven and a half times longer than men on laundry, ironing and clothes care, more than four times longer in cleaning, over three and a half times longer in the care of children and nearly three times longer in cooking. On the other hand, men provide practically eighty per cent of the time devoted to home maintenance and car care. Shopping, gardening and playing with children are the activities where there is the closest approach to equality between the sexes.

It is a mistake to assume that because some activities are chiefly done by women and some by men that these specialisations are numerically balanced. The activities in Table 1 are ranked according to their proportion of total unpaid work, regardless of sex. The numbers in brackets in Table 1 above refer to this. The unpaid work tasks that men specialise in occupy substantially less time than those in which women specialise. Home maintenance and car care (ranked 7th), although heavily 'masculine' occupy less than a third of the time women devote to cooking (ranked 1st). The time men spend on garden, lawn and pool care (ranked 6th) is less than the time women spend on laundry (ranked 5th). The time men spend in physical care of their children is about a sixth of the time women spend (Australian Bureau of Statistics, 1993a:8; Australian Bureau of Statistics, 1988:30).

Of course sex equality ratios are a summary measure and can conceal a multitude of changes. Greater equality in 'feminine' activities, for example, can result from men's activity rising to meet that of women, or from women's activity falling towards that of men. The same is true of 'masculine activities'. It can also be the case that there is no change in equality ratio, when there is change in both men's and women's activities. A

more comprehensive understanding requires the direct study of absolute changes in men's and women's time.

Table 2 sets out the change in the mean time devoted to household productive activities, after the national data has been standardised to Sydney, May-June.

**TABLE 2: CHANGES IN MEAN TIME USE SYDNEY, MAY-JUNE 1987-1992
(HOURS PER WEEK)**

	Difference: Males	Difference: Females
DOMESTIC ACTIVITIES	0.00	-2.57***
<i>Housework</i>	-0.35	-2.92***
<i>Garden/lawn/pool & pets</i>	-0.35	-0.23
<i>Home maintenance & car care</i>	0.23	0.35**
<i>Miscellaneous domestic work</i>	0.93	-0.23
CHILD CARE/MINDING	0.35*	1.40*
PURCHASING GOODS AND SERVICES	-0.12	0.35

* When data is standardised to Sydney, May-June and when age is held constant, the difference in mean times is statistically significant at $p < .005$

** significant at $p < .005$

*** significant at $p < .0001$

The most conspicuous change has come in women's housework time, which in five short years has fallen by nearly 3 hours per week. There is less than one chance in ten thousand that the change in women's housework time is an artefact of sampling error. Any convergence in men's and women's time spent in housework since 1987 has occurred because women are spending less time and not because men are spending more. This could be thought of as a movement towards the 'masculinisation' of women's housework time rather the 'feminisation' of men's housework time. Much smaller increases are found (0.35 hours or 21 minutes per week) in the average time men devote to child care and child minding and in the average time women devote to home maintenance and car care. There is less than one chance in one thousand that the increase in men's child care time results from sampling error. There are less than five chances in one thousand that the rise in the time women devote to home maintenance and car care is the outcome of sampling error. Each of these increases also represents an apparent unilateral dilution of sexual segregation, with men slightly increasing their engagement in the 'feminine' activity of child care and women increasing their activity in the 'masculine' area of Do-It-Yourself home maintenance and car care. One cannot say that the time spent in shopping for goods and services by either sex has changed because the standard errors on these measures is too large to allow any confident determination. Much the same conclusion applies to

garden, lawn, pool and pet care, and miscellaneous domestic work, like household paperwork, transporting other household members and travel related to domestic activities.

Why analyse activity times by age?

There are some important reasons why the analysis of changes across the whole population in aggregated activity time, like change in 'housework', is not satisfactory. One reason is that, as with sex equality ratios, aggregated mean times may mask a variety of changes amongst component activities. The example of 'purchasing goods and services' illustrates this clearly. Although overall shopping time appears to have remained unchanged in the last five years, there has been a measurable increase in the travelling time associated with shopping. Perhaps a more important reason for not dealing exclusively with mean aggregate times, however, is that any difference in the mean time spent by men and women in particular activities, may be the result of changes in the composition of population rather than any historical change in behaviour. The most significant compositional change, in this context, is that the population has aged considerably over the last two decades.

Analysing the data by age helps isolate genuine change over time from changes that result from processes affecting the age composition of the Australian population. We know age affects the time people spend in particular activities. Education related activities occupy a significant proportion of the time of 15-19 year olds but very little of 40-44 year olds' time. Similarly, gardening is a major activity for the elderly while paid work is not. Any change in the age mix of the population, therefore, is likely to affect the overall mean time spent in these activities. It is important to be able to disentangle these confounding 'compositional' effects from authentic historical change.

Age rarely has straightforward, linear effects. Labour force participation among men for example rises steeply from age 15 years to middle age, when it reaches a plateau, before turning steeply downward towards retirement age. Education time, as has been noted before, is disproportionately skewed towards the young, falling sharply from age 15 years on, so that it is bumping along the bottom from middle-age on. Summarising these relationships with a straight line can produce misleading nonsense. If a straight line is fitted to all men's labour force activity, for example, it is likely to run parallel to the X-axis, passing through the average labour force activity time of the entire population, including schoolboys and retirees. Using a standard transformation of the age variable (such as a quadratic term) to create a curvilinear effect, proves a failure because the shape of the curve contrasts wildly according to the activity.

Grouping survey respondents into large categories, for example 10 year age groupings, masks some critical detail. Once again this can be illustrated by labour force activity. It has long been known that women's labour force participation reaches its peak as women approach their 20s, dips around the age when women are in their child bearing years, before recovering as the mothers of school age children return to the paid workforce.

When this pattern is plotted on a graph it results in a curve with a characteristic M-shape. Using 10 year age groups completely obscures this distinctive M-shape and creates the impression that labour force activity time is steady through the child-bearing years. What is lost is how this M-shape has been changing over the decades.

There is another powerful reason for examining time spent in activity according to groups five years apart and this is that the surveys being compared are themselves five years apart. This opens the possibility of analysing the trajectory of birth cohorts. Those born in 1970 were 17 years old when the 1987 survey was conducted, and 22 years old when the next the survey was conducted in 1992. By following the changes in average time spent in a specific activity, say food preparation for 15-19 year olds in 1987 and for 20-24 year olds in 1992, we can follow the experience of this birth cohort as they age. A similar procedure can be followed for all but the youngest age group in 1992. The resulting patterns of change are frequently quite different from what is suggested by cross-sectional analysis. Cohort analysis is an important tool for studying generation's differential experience of change

CHANGES IN HOUSEWORK

Coming out of the kitchen...

('Sisters Are Doing It For Themselves' - ©Annie Lennox-Dave Stewart, RCA Music)

The swiftest, most dramatic and most intriguing changes in the organisation of household production have been occurring in Australian kitchens. Of all the changes in time devoted to household productive activities since 1987, time spent in food or drink preparation and meal clean-up (cooking) is the largest.

By far the largest proportion of the 2 hours 34 minutes a week reduction in women's domestic activity comes from the contraction of cooking time. This has had the greatest impact on the time available to be allocated to other activities, making more time available for face-to-face child care, paid work and socializing.

Changes in the pattern of time spent in food or drink preparation and meal clean up have been evident from 1974. However, the story of the direction of these changes, the rate of change and their social and economic significance is an intricate and tangled tale. In 1992 cooking remained a heavily sex-segregated activity but the gap between women's time spent in cooking and men's time spent in the same activities (hereafter called the 'gender gap') is measurably narrower than at earlier survey periods. Although each survey has seen a progressive narrowing of the gender gap, this has come from unexpected sources and at markedly different rates, so that the nature of the change in the years 1987-92 is quite distinct from that between 1974-87.

Year of Survey	Gender Gap in Cooking Time
1974	10.7
1987	6.7
1992	5.0

1. From slow motion to no motion -the 'stalled revolution' of men's time spent in cooking

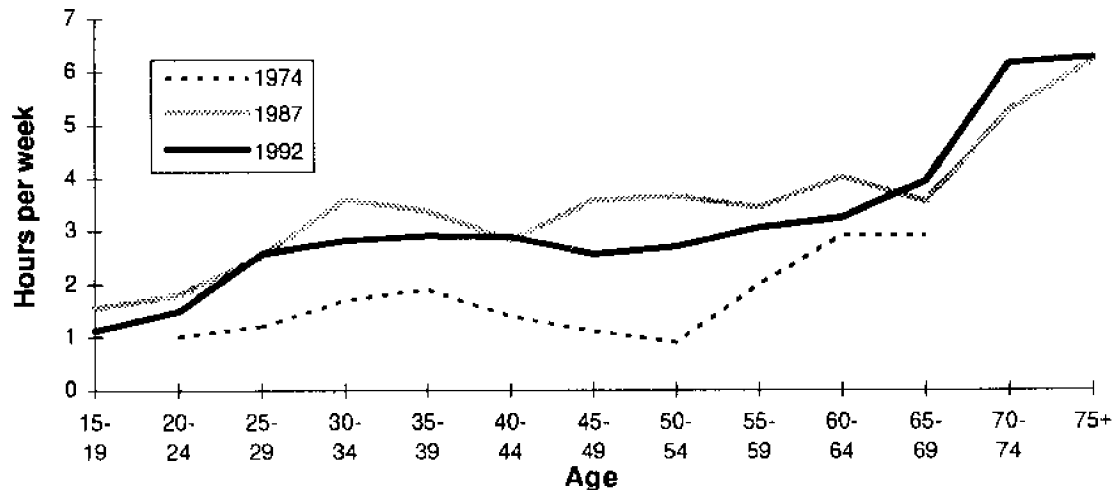
The interest in *men's* response to the emergence of women into public life has been intense (Goodnow and Bowes, 1994; Beck, 1993; Mackay, 1993; Segal, 1990). Interest has focused especially on men's domestic response. Will men, as everybody (including most men) expects, increase their share of formerly 'feminine' domestic tasks (Bittman and Lovejoy, 1993). In her best selling book *The Second Shift*, Arlie Hochschild offered the suggestive phrase the 'stalled revolution' to describe the process by which women are adjusting faster than men to the reality of high female labour force participation (1989: 11). Hochschild's studies were never intended as anything other than small scale and exploratory, and a thorough test of propositions like hers demands much better data.

Our examination of large scale time use surveys show that the phrase 'stalled revolution' describes, more aptly than Hochschild could have guessed, the changes in men's domestic participation over the last two decades. Practically all the change in men's cooking occurred in the thirteen years between in the 1974 and the 1987 surveys, since that time there is no evidence of significant change. This finding of 'no change' not only applies to the aggregate of all men, it also applies to men in each and every age group. From age 15 years to age 75 years and above there has not been a statistically significant variation in men's time spent in cooking.

The overall distribution of cooking time by men's age remained similar from 1987 to 1992. Time spent in cooking reflects the course of transition to the assumption of adult responsibilities. It rises from a teenage base when most males are living at home with their parents, to a working-life peak in their thirties, remains on a plateau until the end of their working-life, after which it rises steeply in response to greater time availability, health limitations and widowhood (Bittman, 1992: 31-56, 110-11). The shape of the 1974 distribution is roughly similar, although the truncated nature of the sample, which did not include people above 69 years of age, makes it more difficult to interpret.

The change over time in men's cooking between 1974 and 1987 appears dramatic because it is calculated from such a low base in 1974. The highest average cooking time for men in 1974 is found among the 60-69 year olds. At just under 3 hours per week it was barely a fifth of the labour time expended on cooking by women of a similar age. The lowest male cooking time in 1974 is found among young men in the 20-24 year old group, who spend one hour per week on food or drink preparation and meal clean up (compared with 7 hours 36 mins spent in these activities by women of an equivalent age). Both young and old groups of men increased their cooking time by a fraction of an hour per week in the thirteen years leading up to 1987 and have not significantly increased their time participating in these activities since.

**Figure 1: Men's Time Spent in Cooking - 1974, 1987 and 1992
(Hours per week)**



Between the extremes, men aged 25 - 59 all increased the time they contributed to cooking by more than one hour per week in the thirteen years up to 1987. The increase in this period peaked among men of 50-54 years of age at 2 hours 42 minutes. Since that time, men in this parental age group (25-59 years) have not significantly increased their weekly hours of cooking. In summary, the information from the three time use surveys indicates that men's cooking time beginning from a low base in 1974 underwent a modest increase until 1987 but has not changed since. Among 40-44 year olds, for example, starting from a base of 1 hour 29 minutes per week, cooking rose at an average 7.7 minutes each year to arrive at a peak of 3 hours 4 mins per week in 1987, after which it remained on a plateau (of 2 hours 52 minutes) until 1992. A physicist contemplating the change in the rate of change in men's cooking time would describe it as moving acceleration to deceleration. In lay language we would describe it as moving from 'slow motion' (Segal, 1990) to 'no motion'.

Demographers distinguish between generational and secular change. Secular change is a change that occurs at a particular historical point in time and affects all individuals regardless of their year of birth. Generational change, on the other hand, implies that while a younger generation changes, an older generation remains unaffected. Analysis of the age cohorts reveals a marked pattern of secular rather than generational change in men's cooking time. For all men born in 1953 or earlier there has been an increase in their cooking time between 1974 and 1987 and either no increase or a very small decrease over the five years from 1987 to 1992. This points to a process of secular change, where all men born before 1953, regardless of age, experienced similar movements in their cooking time over this historical period. Among those born after 1953 the picture is considerably more complicated. It shows traces of generational change together with evidence of changes in the timing of life course transitions. The cooking times among men born 1953-

7 follow a different trajectory to those born five years earlier. For this 1953-7 cohort, average cooking time is much higher in their early 30s and lower in the late 30s than for those born 1948-52. This exceptional pattern could possibly reflect the increasing tendency, continuing through the end of the 1980s to the early years of the next decade, to postpone both marriage and child rearing. Cross-sectional analysis reveals that marriage has the effect of lowering men's cooking time (Bittman, 1992:41, 110-11; Australian Bureau of Statistics, 1994a: 121-2). Cohorts born after 1957, who are also experiencing greater rates of completed high school education, exhibit average cooking times that are similarly higher than those born before 1952 at similar ages. However, in more recent times there is little evidence that successive age cohorts have started from a higher plane. Indeed, the 'stalled revolution' is nowhere more evident than in the failure of younger men, raised in 'post-feminist' households, to increase their contribution to cooking.

2. Women are doing it for themselves - accelerated change in women's time spent in cooking.

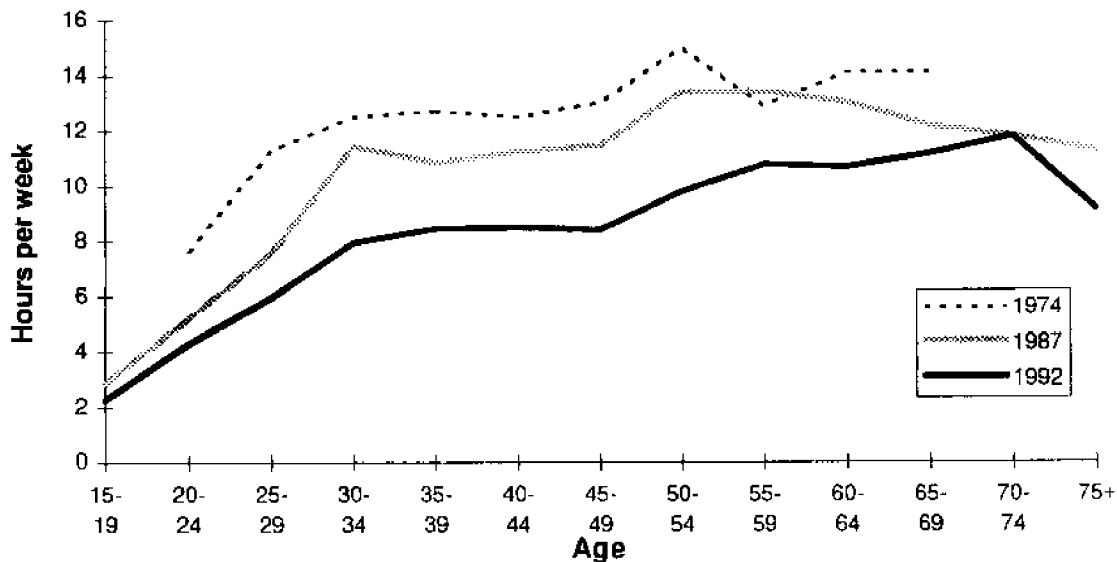
In contrast to the changes in men's time spent in cooking, the change in the time that women devote to cooking has never been more evident than in the last few years. Overall the reduction in women's cooking time between 1987 and 1992 is far greater than could be expected by chance. Strangely, while much has been written about women's expectations of men, the actual change in women's own domestic labour times, independent of the actions of men, has gone largely unnoticed by commentators.

There are also obvious affinities between all three survey years. Once again, as was the case with men's cooking time, the overall shape of the distribution of women's cooking time by age remained stable between 1987 and 1992. In the case of women, however, the pattern has been similar since 1974. Starting from a higher base among teenagers the curve rises sharply through the young adult years, before reaching a plateau in the child-rearing years, then rising steadily to another peak at age 55-59, and finally then turning downward as the number of women without partners becomes influential (Bittman, 1992: 53-55, 108-9). Whereas the shape of the distribution of men's cooking time by age is dominated by the long plateau between ages 25 to 65 with sharp rises at either extreme, the women's is more generally characterised by a long process of continuous rise, stretching from the teen years to late in life, before the curve hooks downwards among women of advanced years.

Not only is the magnitude of the change in women's cooking time the largest of any of the changes in housework activities but the rate of change has accelerated markedly. While no one can confidently claim there have been changes at the extremes of the age distribution, across the broad span of adult women's life course, from age 25 to 64, there has been a significant ($p < .01$) reduction in women's cooking time in the last five years. The magnitude of this change has been least (1 hour 37 minutes per week) among young adults aged 25-29 and greatest among 30-34 year olds and 50-54 year olds (3 hours 31 minutes and 3 hours 37 minutes per week respectively). For those aged 35-49 and 55-64 their average cooking time was reduced by at least 2 hours 19 minutes between 1987 and 1992.

With the exception of 25-29 and 35-39 year olds, the extent of this reduction is double that which occurred in the thirteen years between 1974 and 1987. It must be borne in mind that there is a significant difference in the time Sydney and Melbourne women spend in cooking. Melbourne women do an average of half an hour more than their Sydney counterparts. Relying on Melbourne information for 1974 could understate the change in women's cooking time. Nevertheless, even when this intercity difference is taken into account it is not large enough to change the overall conclusion of the quickening pace of change. If it was assumed that change occurred at an even rate in each of these periods, then among those aged 30-34 cooking time fell by a yearly rate of 5 minutes per week until 1987 and a yearly rate of 42 minutes per week thereafter. In what is, historically speaking, a short period of time, both the order of magnitude and the accelerating rate of these changes in women's cooking behaviour is astounding.

**Figure 2: Women's Time Spent in Cooking - 1974, 1987 and 1992
(Hours per week)**



It is worthy of notice that, considered together, the changes in the cooking times of both genders in the eighteen years since 1974 present a picture of transformation in the nature of change. The *appearance* of greater sharing between men's and women's time spent in cooking over the last few years, is the product of the unilateral reduction on the part of women⁷. In other words, since 1987 the absolute contribution of men has remained steady but their relative share has increased because women's absolute times have substantially decreased. Even in the thirteen years before 1987 the reduction in women's cooking time contributed as much to an appearance of convergence as the increase in men's cooking time. Between 1974 and 1987, however, the nature of this change was different, not only because there is some evidence that men increased the time they allocated to cooking but also because the rate at which women decreased their allocated time was not anything as fast. Between 1974 and 1987 it made more sense to imagine a future of convergence

towards a pattern of 'symmetrical families', where men's role in food and drink preparation and meal clean-up would move beyond 'helping', beyond the tea towel and move towards accepting equal responsibility. In more recent times it makes much more sense to talk about women's refusal, their behavioural rejection of the idea that 'their place is in the kitchen'.

The analysis of the age cohorts of women uncovers a pattern which in many respects is the opposite of that for men. Like men, however, there appears to be a combination of secular, generational and life course changes. For women born in 1947 or earlier, there appears to be no generational change but a powerful secular change in the last 5 years. Among these women, regardless of age, there has been a sharp fall in cooking time over the period from 1987 to 1992. For those born 1948 or later there may well have been a generational change. After 1948, each younger cohort has a lower cooking time than women of an equivalent age in the cohort before. The pattern is complicated by the effects of a dramatic rise in high school retention rates among women, greater participation in tertiary education, and a continuing pattern of postponed marriage and childbirth (Australian Bureau of Statistics, 1994a:32, 90). All these factors contribute to lower cooking time for those born after 1947. It has been shown that students at institutions of tertiary study spent little time in all housework, especially cooking. Marriage, on the other hand, is linked with increased cooking times for women (Australian Bureau of Statistics, 1994a: 121-2; Australian Bureau of Statistics, 1993a: 58; Bittman, 1992: 53-55, 108-9). Nevertheless there is persistent evidence that young women at home spend more time in cooking than their brothers (Australian Bureau of Statistics, 1994a: 124; Bittman, 1992: 38, 108-111). If sex roles are predicted to dissolve among the younger generation it has not happened yet, not even among groups whose mothers were young enough to have their child rearing practices influenced by feminism.

A Brighter Wash?

One of the most astonishing findings reported in Vanek's celebrated article 'Time Spent in Housework' (1974) was her claim that the time spent in laundry had not decreased since the late 1920s. Of all the domestic tasks to which technology has been applied, the tasks of laundry, ironing and clothes care would seem to be the one where appliances had 'saved' most labour.

At the end of World War II Australian housewives boiled their wash in large coppers. Coppers were heated by wood fires, and shaved soap added to the heated water. Dirty clothes, collars and stains were rubbed on a washboard in tubs and added to the steamy and bubbling water where they were prodded with sticks and manipulated with wooden tongs. Clothes were starched, and in the case of whites, 'blued' during the rinsing process. The wet clothes were folded so as not to damage buttons and (typically) passed through a hand operated mangle to be wrung dry. After wringing, laundry was pegged out on a propped clothesline to dry (hopefully) in the sun. Laundry meant heavy physical labour that demanded great attention to detail. Not everyone owned electrically heated irons at the end of World War II and water sprinkled through the holes in the lid of a old tomato

sauce bottle provided the necessary steam. It is no exaggeration to suggest that housewives looked forward to 'washing day' with the same dread that their husbands approached returning to work after the weekend. As Monday was often washing day, it is not surprising that women too sometimes complained of 'Monday-itis'.

Some decades later the 'set and forget' automatic washing machine had become a feature of most household, along with laundry detergent, spray-on starch, steam irons, easy-care fabrics and tumble driers. Against this background, Vanek's finding that women's time spent in laundry initially increased slightly in response to these innovations and that there was no evidence of a decline over the century caused surprise and some scepticism (1974: 117). Much ink has been expended on either seeking to refute these findings or to explain them (Gershuny and Robinson, 1988; Cowan, 1985).

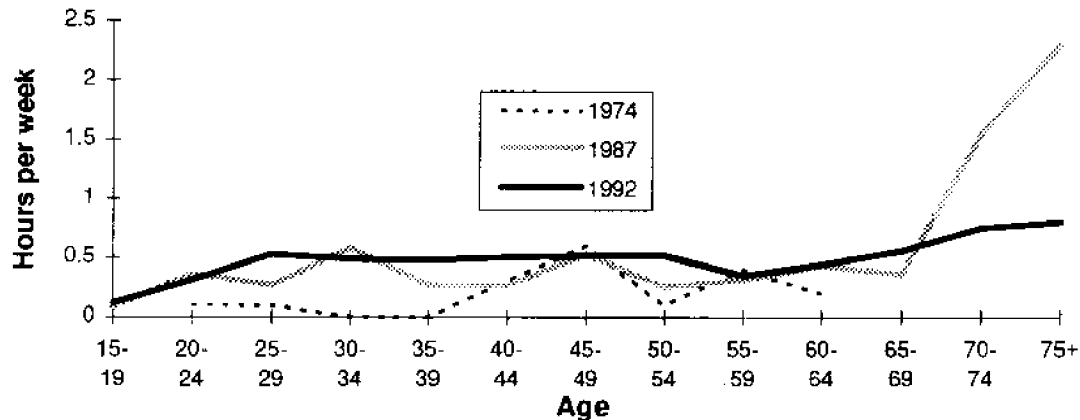
The evidence presented here suggests that in the period 1987-92 during which there has been little technological innovation, there have been some significant changes in the time spent in laundry. The evidence suggests that change results from economic and social factors. Once again these have come from significant changes in women's behaviour and not from the appearance of a new generation of 'sensitive' men.

1. Bumping along the bottom - men's contribution to laundry

Laundry remains the touchstone of sexual segregation (see Table 1). In 1992, as in 1974, it is still a task done predominantly by women. While men's laundry time has increased since 1974 it is still much closer to zero than to the average time spent by women on this work. Indeed, in 1974 among some age groups, the average time spent by men was estimated at zero. In 1992 time devoted to laundry, ironing and clothes care by men was less than a seventh of the time women devoted to the same task. The overall change in men's laundry time between 1987 and 1992 is so small that it could be the result of sampling error (Table 2).

The curve tracing the distribution of men's laundry by age has a pronounced low plateau covering most of adult life (age 25-65 years). Because the magnitudes involved are tiny and the numbers of participants picked-up by the small sample in earlier years, this plateau often has a saw-toothed appearance. This curve suggests that life course events outside of employment (such as marriage, the birth of children, and the departure of children from the parental home) have remarkably little influence on the quantity of time men invest in laundry.

**Figure 3: Men's Time Spent in Laundry - 1974, 1987 and 1992
(Hours per week)**



The exceptional influences, seem to be independence, employment and loss of spouse. There is a measurable increase from the teen to the early adult years, although the average time spent for both these age groups is measured in fractions of an hour. The low average time among this youngest group suggests that few teenage men participate in the cleaning and care of their own clothes and bed linen. The lack of recent change implies that it is unlikely that there is a rising generation of men who are laundry-aware about to hit the marriage market. Above this age, a comparison with women's average times indicate that few men ever accept a substantial responsibility for their household's laundry obligations. The end of paid employment signals a rise in men's laundry time which increases substantially as men move into age groups that increase the probability of the loss of a spouse (Bittman, 1992: 50-55, 110-111). Indeed the only significant ($p < .05$ or better) changes we could detect in men's laundry time, occurred among those men aged 70 years or more.

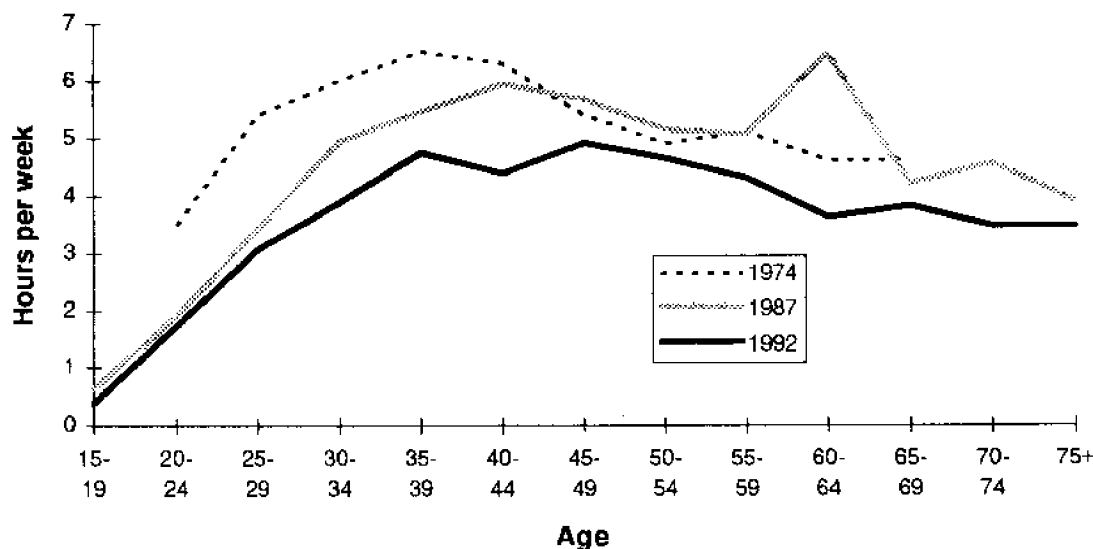
It is reasonable to suspect that there is a degree of measurement error in the very steep rise in laundry time among men of this advanced age in 1987, and therefore that the decline between 1987 and 1992 is an artefact of this error. There are, however, also reasons to expect the 1992 data would show a less steep rise among males of advanced years. In recent years the Federal government has altered the entire direction of its social policy towards the aged. The new direction emphasises care of the aged in their own homes (Clare and Tulpulé, 1994: 80). The Home and Community Care (HACC) program is the flagship of this change. Under the HACC program domestic services are provided to the aged in their own homes. Expenditure on this services increased from \$142,800 in 1985-86 to \$278,900 in 1990-91 (Clare and Tulpulé, 1994: 81). Under these circumstances it seems plausible to expect that laundry services provided under this program could have lowered men's time spent in laundry.

Analysing men's laundry time by birth cohorts does not reveal much. The variation among cohorts is rarely above 2 minutes per day, meaning that any increase or decrease in men's laundry time is likely to be so small that it is not greater than the variation that could be expected as a result of sampling error. There may be a different pattern for men born before 1952 but again the movement is too small, and the period too short, to confidently claim a generational change. Men's laundry time remains very low and there is little evidence to support the idea that those born to a generation of mothers influenced by feminism are behaving differently from their fathers.

2. Thirty Something ? The recent reduction of women's time spent in laundry

Whereas most adult men, now and in the past have spent a fraction of an hour per week in laundry, ironing and clothes care, it was not unusual for women, before 1987, to spend between five or even six hours a week in these activities. In recent times, however, there has been a clear reduction in women's laundry time. Along with the drastic reduction of time spent in the kitchen, the contraction of time women spent in the laundry, at the clothes line or dryer, over the ironing boarding and basket, and at the wardrobe has been a second major reason for the decrease in their overall housework time. Across all age groups women's time spent in laundry activities has decreased by 44 minutes per week. There is less than one chance in one thousand that this finding results from sampling errors.

**Figure 4: Women's Time Spent in Laundry - 1974, 1987 and 1992
(Hours per week)**



The shape of the distribution of women's mean laundry time by age shows a progressive diminution of an early adult peak, which was quite a pronounced feature of women's pattern in their thirties in 1974. In 1987 time spent in laundry activities peaks when women are in their early forties. By 1992 the peak looks more like a plateau stretching from the mid thirties into the fifties. This may reflect the incremental postponement of childbirth and the fall in family size that has occurred over this same period.

This postponed childbirth explanation is also consistent with another feature of the age distribution of laundry time, namely, the steep rise in women's laundry time during the young adult years. Beside the lowering of the peak, the other most obvious element of change in women's laundry time is an apparent postponement of increases in laundry time. Between 1974 and 1987 the average laundry time of women aged 25-29 years fell by 2 hours a week, a decrease of 37%. Among 20-24 year old women it fell by 1 hour 36 minutes, an age specific decline of 46% over the thirteen years. For women aged between 30 and 34 years, the change over this thirteen year period between surveys shrank by 1 hour 6 minutes per week or 18%.

The other characteristic of the age distribution of women's laundry time is the decrease in later life. Apart from an anomalous peak at age 60-64 years in 1987, all three curves follow this pattern. From 1987 the laundry times of women in later life resemble those of women aged in their mid-twenties. It seems plain, however, that the downturn in later life has been successively delayed and is becoming less pronounced.

In recent years the major change has been concentrated among women aged 30-44 years. The 22% (1 hour 6 minutes per week) decline in 30-34 year old women's laundry time and the 11% (1 hour 36 minutes per week) decline in 40-44 year old women's laundry time are both significant ($p < .01$). Further the results are consistent with the argument about changes in the rate and timing of fertility. Children increase the quantity of laundry to be washed. The lower proportion of women of 'childbearing age' having children lowers the average time spent in laundry, while the postponement of childbirth accounts for the fact that time spent in laundry reaches its peak at a later age.

Turning to the analysis of women's laundry time by birth cohorts, there are several features worthy of comment. First, there is a pronounced general or secular decline in laundry time from 1987 for women of all ages. This has been combined with a gradual generational shift which compresses the age range of peak laundry times. This is evident at both ends of the age distribution with each younger cohort taking more years to reach the age of peak laundry time and beginning their descent from peak times at a younger age. Those born 1948-52, for example, did less laundry (in their twenties) than older cohorts, reached their peak of laundry activity in their thirties, and their laundry time declined in their forties. The mothers of these women maintained a similar level of laundry into their fifties. In many ways the generational changes, which mirror the shrinking of child rearing years, are more easily comprehended than the secular change. It is difficult to think of an event or an innovation in the years 1987-1992 which should so affect the time of women of all ages. There is no official inventory survey of Australian homes so it is impossible to say definitely that the diffusion of clothes dryers between 1987 and 1992 is partly responsible for this general or secular change (and an age specific change only among women less than 40 years of age). It does seem an improbably complicated pattern of change to be explained by the spread of domestic technology alone. Perhaps the most promising explanation of this change is a normative one, that is, one that relies on more relaxed standards of clothes care.

In addition to demographic explanations of these changes it is interesting to speculate about the possible influence of fashion and consumption preferences. The 1980s was a period of change in fabric preferences, with a highly publicised return to natural fibres, especially cotton and linen, both fabrics that crush and require ironing. This development was perhaps offset by the growing popularity of tracksuits as all-purpose leisure wear, especially for children. All this may have been accompanied by a normative change about presentability, that is, by changing ideas about what garments and manchester required ironing.

No dirtier homes

When presented with evidence of reduced time devoted to housework, some commentators have speculated that this implies lower standards of cleanliness around the home. Reporting on a comparison of 1965 and 1975 time use data for the U.S. Robinson noted that

Another explanation for the decline [in time devoted to housework] is that women's norms for household production and/or cleanliness have relaxed over this decade. In other word, today's woman could find a less tidy household more tolerable than ten years previously (1980: 65).

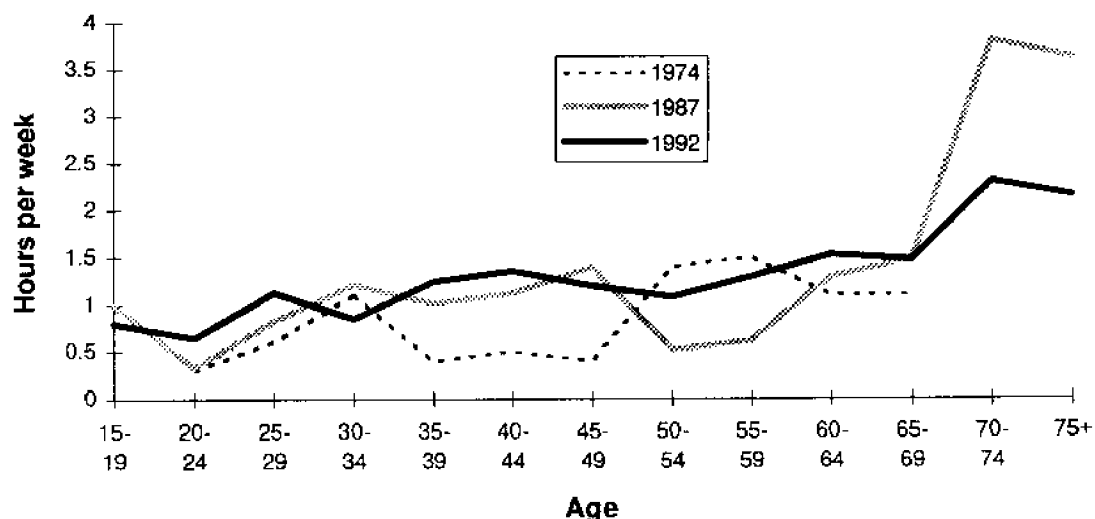
Less time spent in housework denotes dirtier households. Ruth Schwartz Cowan (1985:191) and Kereen Reiger (1985), have drawn our attention to the domestic impact of the discovery of the 'germ'. The diffusion of the doctrine of hygiene among the households of all classes early this century led to an emphasis on the dangers of dirt. Good housekeeping became synonymous with the maintenance of hospital level aseptic environments. It is not surprising that the reduction of cleanliness provokes social anxiety.

The evidence of changes which have occurred between 1987 and 1992, however, does not sustain the implicit equation: reduced housework time equals the reduction of the time spent in cleaning (and, ultimately, dirtier households). Of course the link between time spent and the actual state of cleanliness in a home has not been established by this study. If the productivity of cleaning labour time varies, if time spent vacuuming is inherently more productive than sweeping or if the productivity of the operator varies significantly, then the same output (cleanliness) can be the product of different quantities of labour. Quite apart from this important logical objection, and despite the fact that the housework time of women has continued to fall rapidly, the recent changes in cleaning time for both men and women have been less than would be expected by chance. Given such evidence, the most secure conclusion that can be reached is that there has been no change in cleaning time between 1987 and 1992.

1. The 'revolution' that never got started - lack of change in men's time spent in cleaning.

The shape of the distribution of men's average cleaning time by age is generally flat with a steeply rising tail after age 65 years. There is remarkably little variation in men's cleaning in all stages of the life course leading up to retirement. The lowest average time (24 minutes per week) devoted to cleaning is found among 20-24 year old men in 1974 and the highest time (1 and a half hours per week) among men below retirement age is found among 55-59 year old men in 1974. There is only a small increase between the teen years and middle age which, considering the these ages span situations ranging from living as a dependent in their parents' household to being a parent in a completed family of their own, is quite extraordinary.

**Figure 5: Men's Time Spent in Cleaning - 1974, 1987 and 1992
(Hours per week)**



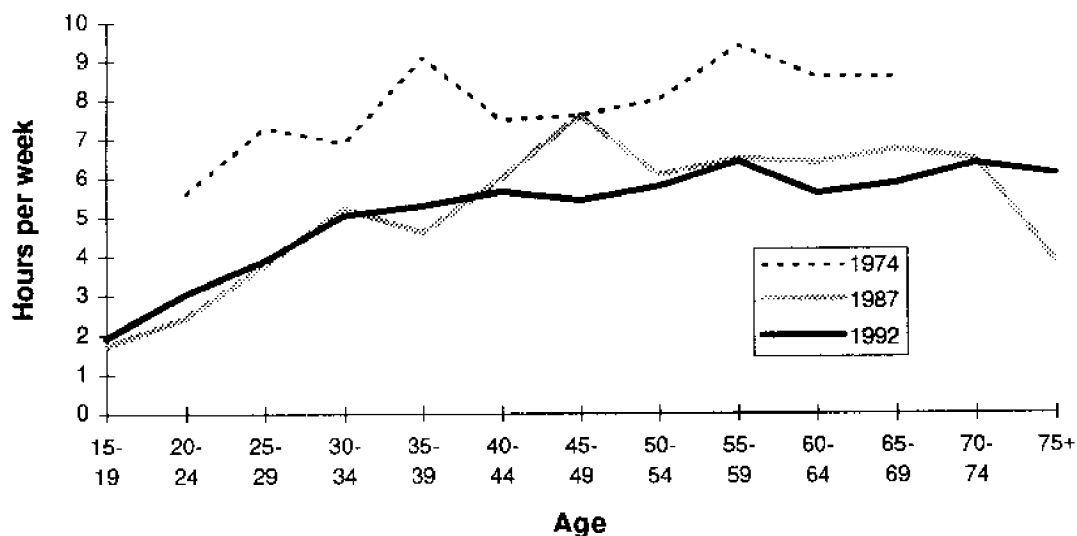
Cleaning is second only to laundry in being the most sex segregated activity in Australian households. The major feature of the historical picture is the rapid increase after 65 years of age. In 1987 average cleaning time among 70-74 year old men approached that of women. However, the only significant ($p < .05$) age specific change in men's cleaning was a 1 to 2 hour reduction among men aged 70 years or more. Perhaps the reasons for this change, as with the change in laundry, are to be found in the increased provision of home-based services for the aged.

The most predominant feature of men's time spent in cleaning is the rise associated with retirement. There is some evidence that this rise, like retirement itself, is beginning earlier with each successive generation. Secular change or general change across the age range associated with the passage of historical time is not particularly evident.

2. Arrested change -women's time spent in cleaning

The overall shape of the age distribution of women's average cleaning time has not changed in the eighteen years between 1974 and 1992, rising gently until age 70 years and then turning downwards. The 1992 curve is smoother and has lost many age-specific peaks, which may also be an effect of the greater numbers used in estimating this curve. In contrast to the stability of this overall shape, however, changes in the magnitude of time devoted to cleaning is a story consisting of two distinct parts. In the first part of the story, between 1974 and 1987, there is a substantial decline, frequently of the order of 3 or more hours per week. The second part of the story is the failure of the expected decline to continue. On the basis of what has come before, it would have been reasonable to expect one further decline of approximately 1 hour per week in women's cleaning time between 1987 and 1992 but there has been no such general decline. In recent years, the only significant ($p < .05$) age specific changes in women's cleaning time have occurred in recent years are among those aged 45-49 years (which corresponds to a peculiar peak in the 1987 distribution) and those aged more than 70 years. Among women aged 70 years and over in 1992 there has not been the same sharp downturn in cleaning found in 1987. This comparative levelling-off of changes accompanying advanced age corresponds to that found amongst men, although the directions of the movement of each gender are opposite.

Figure 6: Women's Time Spent in Cleaning - 1974, 1987 and 1992
(Hours per week)



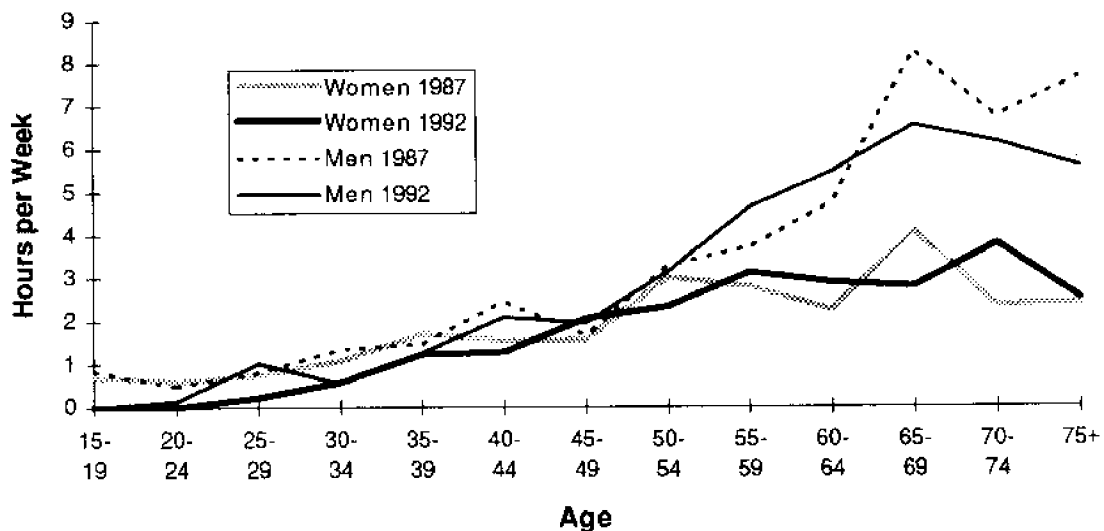
There appears to have been a generational shift in the time men devote to cleaning. Among men born before 1938, less time is spent in cleaning than among men born during or after World War II. For men born after 1937 there is a very slight indication of rising time devoted to cleaning but this is an ambiguous trend. The strength of the effect of being beyond 50 years of age on time spent in cleaning is far stronger than any of the small shifts that might be attributed to generational change.

Outdoor housework - A man around the house...

1. What's happening out in the backyard ?

Gardening, mowing the lawn, trimming the lawn edges, cleaning and maintaining swimming pools, and looking after pets, or what the Americans sometimes call 'yard work', is a category of activities that is more 'masculine' than 'feminine'. A sex equality ratio of 0.5:1 indicates that two thirds of all the time spent on yard work is contributed by men. A cursory inspection of Figure 7 shows that yard work acquires this masculine character only after middle-age. Up to that point men's and women's yard work times are far less distinguishable. Yard work rises steadily with age for both sexes until age 55 years. After that age the men's curve climbs more steeply to a peak of more than 6 hours per week, while the women's curve continues on its original gently rising trajectory to a peak of approximately 4 hours per week. Both sexes reduce their hours of yard work in later life.

Figure 7: Men's and Women's Time Spent in Garden, Lawn, Pool and Pet Care - 1987, 1992 (Hours per week)



There is very little indication of overall change, for either gender, in yard work hours over the period from 1974 to 1992. The activity category show remarkable stability in the face of other changes in time use. Consistent with the finding for housework tasks, is a significant ($p < 0.5$) fall among men of advanced years (75 and over). Among women the only significant ($p < 0.5$) change occurs among those in the 15-19 age group, perhaps reflecting increased high school retention rates among women.

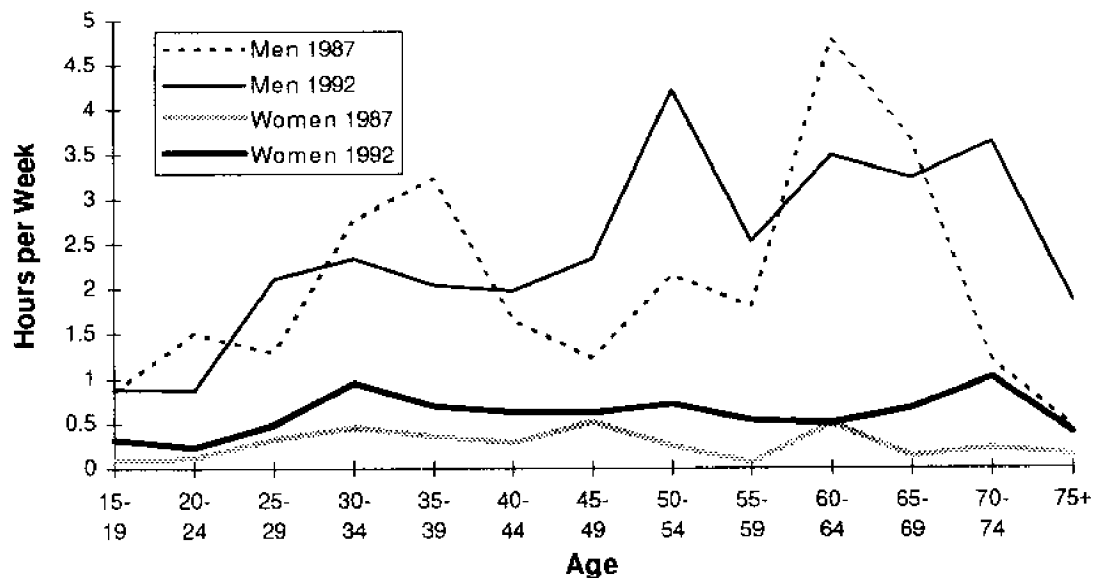
The search for generational change in the time devoted to yard work among men reveals, on the whole, remarkably little change. The exception is that yard work of men aged over 65 years appears to be falling for those born after 1912. A cohort analysis of women's time

spent in garden, lawn, pool and pet care suggests three separate conclusions - a decline in the yard work of adolescents and young adults born after 1963, an increase in yard work activities for those born after 1947 and a diminution of time spent in these activities for women born after 1922. The pattern of generational change in yard work is not particularly distinct, and confident predictions are probably unwarranted.

2. Handy persons - A reduction in sex segregation in home maintenance and car care?

Home maintenance and car care remains the most 'masculine' category of all the household productive activities. On average men spend much more time in this category of activities than on laundry and cleaning put together. The two curves for men are both characterised by peaks and valleys, however, there seems to be an underlying trend for time spent in home maintenance and car care to rise with age. Although there appears to be changes in the timing of peak home maintenance and car care times, of all the age specific changes, only the flattening of the former peak among 35-39 year old men is statistically significant ($p < .05$).

Figure 8: Men's and Women's Time Spent in Home Maintenance and Car Care - 1987, 1992 (Hours per week)



The time women devote to this activity is small and readily comparable to the time that men devote to laundry. The curve of women's time spent in home maintenance and car care is also relatively flat across the age range, with only a modest increase associated with the age of independence (mid-twenties). In 1987, women on average spent 1 hour 48 minutes per week less on this category of activities than men. Five years later a statistically significant ($p < .005$) extra 21 minutes per week had been added to women's home maintenance and car care activities. This seems to be spread thinly across all ages, since the only significant ($p < .05$) age specific increase is among women aged 70-74 years. By

1992 the gender gap in home maintenance and car care had narrowed to 1 hour 36 minutes per week.

Does this reflect a 'feminisation' of Do-It-Yourself home renovations? This is certainly an area where individuals can substitute their own labour for market services (especially painting). Such substitution could either be the product of households' response to the recession or it could be part of a long term change (Gershuny, 1983; Gershuny and Pahl, 1979). Pahl attempted a test of the proposition that the unemployed turned to Do-It-Yourself endeavours as a way of maintaining their standard of living when demand for labour was weak. He studied a community in the Isle of Sheppey in the county of Kent, England. Pahl concluded that low income households were prevented from increasing their wealth by producing goods and services for themselves by the lack of cash to buy the necessary materials. The unemployed, for example, rarely painted their homes because they could not afford to buy paint, brushes, filler, etc (Pahl, 1984: 198-231).

A cohort analysis of changes in the time men devote to Do-It-Yourself tasks indicates there have been shifts in the timing of peak activity. Men's home maintenance and car care activity exhibits two peaks separated by a trough in middle age. The timing of the first peak has become progressively earlier and less pronounced for men born after 1938. As might be expected, there is a tendency for the middle-aged trough to occur earlier. While there is a distinct second peak for those aged 50-69 years it is difficult to detect any consistent pattern of generational change in either the magnitude or the timing of the peak. Among women, the magnitude of time devoted to home maintenance and car care is small and consequently the changes are of small magnitude. Although it is not possible to speak with any great confidence about these changes, there is a consistent upturn in women's Do-It-Yourself activity at a particular point in their lives and this point has been occurring earlier for each successive generation born after 1928. This may reflect the changing timing of home renovation. Perhaps renovation was once connected with the retirement or the empty nest phenomenon and more recently it has been connected with the purchase of a first home.

DEPRIVED IN THE NURSERY ?

It seems plausible to expect that time spent in child care will be affected by the numbers of children, the quantity of accessible and affordable child care services, and the time available for child care. Before examining the changes in time spent in child care, it is worth considering (a) changes in family size and the timing of births; (b) indicators of the level of provision of child care services, and (c) how paid employment affects the time available for child care.

Demographers use a measure called the total fertility rate to estimate completed family size⁸. At the height of the baby boom in 1961 the total fertility rate was 3.55, by 1975 it had fallen to 2.06, by 1987 it had declined further to 1.87 and in 1991 it was 1.9. This represents a 9% decline in the estimated completed family size between the 1974 and 1987 surveys. This decline was arrested in the period between the two more recent surveys and

it is too early to say if the decline will be reversed in the next decades (Hugo, 1992:7; United Nations, 1991).

In addition to changes in overall fertility, it is important to consider the timing of births. During the baby boom, more children were born to women aged 20-24 than to any other age group. By the end of the 1970s the fertility rate among women of this age group was half what it had been in the early 1950s. Over the same period, dramatic fertility rate declines were also to be found for women aged over 34. The fertility of women aged 35-39 at the end of the 1970s was a third of what it had been in the early post war years and for those aged over 40 years fertility was less than a quarter of prevailing rates in the 1940s and 1950s (Hugo, 1990: 16). The result of these changes was that child bearing in the 1970s became increasingly concentrated in the 25-29 age range.

The 1980s saw the emergence of a pattern of delayed childbirth. For women aged under 25 years or over 40 years, fertility rates continued to fall but rose among women aged between 25-39. Whereas in the late 1950s less than one half of all births had been to women aged 25-34, by 1990 women of this age accounted for 63% of all births (Hugo, 1992: 18). The proportion of children born to women over 35 years of age has grown steadily since the mid 1970s. In 1992 women gave birth at an older age than their own mothers. As Graeme Hugo points out;

The continued increase in the age of child bearing is reflected in the median age at child bearing increasing from 26.94 in 1980 to 28.26 in 1990. Indeed...the upward trend in age at child bearing saw the fertility rate among women aged 25-29 begin to decline in the late 1980s as more births were pushed into the 30s age group (1992: 19).

Children aged 0-16 years represented 25% of the total population in 1992, a similar proportion to that which prevailed at the end of the 1980s. The postponement of childbirth, however, has resulted in a slightly younger child population. Between 1987 and 1992 the number of children below 12 years of age grew by 5.7% while the number of children aged between 12-16 years actually decreased by 8.7% (Australian Institute of Health and Welfare, 1993: 127).

The growth in the number of young children has been, to some extent, offset by the growth in the number of child care places provided. The Child Care Act introduced in 1972 established a formal role for the Commonwealth Government in funding child care. In a major philosophic shift, the government announced in 1974 its intention to provide child care for all Australian children. This expanded the scope of the provision of child care services beyond the narrow framework of welfare services to the poor and needy, and encouraged new forms of service delivery, such as family day care, after school care, playgroups and mobile preschools. A shift in the method of funding, which effectively redirected funding towards fee-relief for targeted low income groups, has occurred since 1986. The Commonwealth Government is currently committed to meeting all work-related demands for formal child care by the year 2000-1 (Australian Institute of Health and Welfare, 1993: 130-3).

Throughout the second half of the 1970s and early 1980s child care services developed very slowly but there has been a rapid increase since the middle 1980s. Table 3 below shows how rapidly the numbers of children using child care services funded by the Children's Services Program have increased since 1987.

TABLE 3: PER CENT INCREASE IN THE NUMBERS OF CHILDREN ATTENDING SERVICES FUNDED BY THE CHILDREN'S SERVICES PROGRAM SINCE 1987

Type of service	No. of Children in 1987	Percent increase on 1987 figures			
		1988	1989	1991	1992
Long day care	50,105	10.3	21.3	170.2	216.1
Family day care	44,310	15.7	17.0	37.6	49.2
Outside school hours care	17,743	44.7	68.6	164.0	186.1
Other formal care	3,990	23.4	164.9	376.4	563.0
<i>Total children</i>	<i>116,148</i>	<i>18.1</i>	<i>31.8</i>	<i>125.8</i>	<i>159.8</i>

Source: Australian Institute of Health and Welfare, 1993: 133, Table 4.2

Nearly half of all children under 12 years of age receive at least some formal or informal care. The proportion receiving some form of formal care rose from 15.7% in June 1987 to 19.3% in June 1993 (Australian Bureau of Statistics 1994b:4, Table 1.1). In the financial year 1991-92 total Commonwealth expenditure on child care services, under various programs, was \$435 million (Australian Institute of Health and Welfare, 1993: 142).

Figure 9: Proportion of children in care by hours of care (per cent)

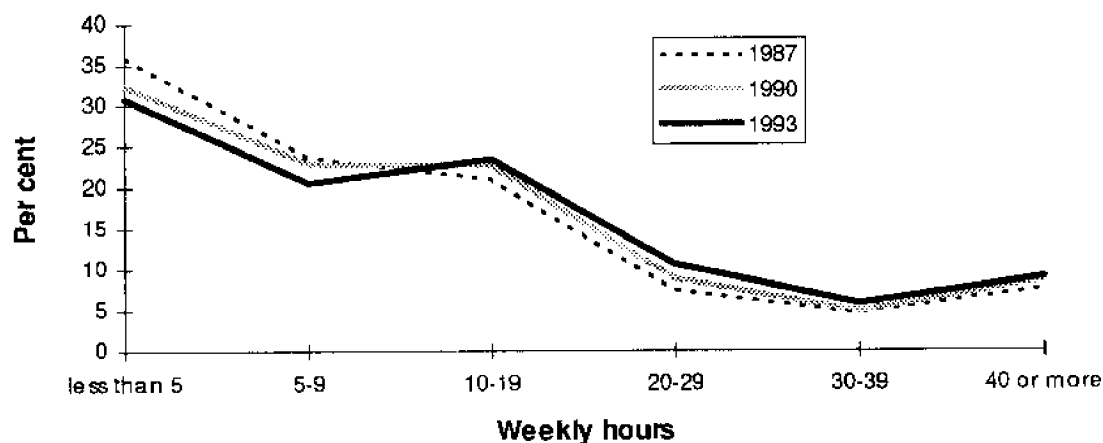


Figure 9 illustrates the decline in the numbers of children receiving low weekly hours (less than 10 hours) of formal care and the rise in the numbers of children receiving higher weekly hours (10 or more hours) of formal care. It is as though the distribution of weekly hours of formal care was a see-saw pivoted on 15 hours per week that at each successive survey year had tilted slightly so that the left hand side (less than 5 hours per week formal care) is lower and the right hand side (40 or more hours per week formal care) is higher. The practical significance of the fulcrum of this movement falling on 15 hours per week of formal care is that it represents 3 hours a day for each school day of the week. When these extra 3 hours are added to the school day, then there is effectively 45 hours per week during which there is some institution outside the family household looking after young children. This is sufficiently long to make full time work a realistic prospect for both parents.

The dominant forms of child care - long day care, family care and outside school hours care - all release parents from the responsibility to provide direct care for a substantial proportion of waking hours. On average, both men and women in Australia are awake for 15 hours 41 minutes of the day (Australian Bureau of Statistics, 1994a: 120). When formal care or a combination of school and outside school care provides 8 or more hours per day this makes more than half the day available for some other purpose, such as paid employment.

Traditionally it has been assumed that child care implies motherhood and the issue of child care has been linked to women's employment (see, for example, Bowlby 1958; Bowlby 1965; Harper and Richards, 1979; Michelson, 1985). Most of these arguments rest on the presupposition that not only is child care women's business but also that it depends heavily on the hours remaining after a woman's employment commitments. It is commonplace to remark on the rapid growth of women's employment since 1947 (see, for example, Mumford, 1989). There has been a spectacular increase in women's, particularly married women's, labour force participation over this time. In the period between 1966 and 1992 married women's labour force participation rate rose from 29% to 53% (Australian Bureau of Statistics, 1993c: 118). Commenting on the age specific changes in women's labour force participation since 1966, the authors of *Women in Australia* point out that

In 1992, married women aged 35-44 years had a higher participation rate than married women aged 20-24 years, a reverse of the 1966 pattern. This is indicative of a greater proportion of women returning to work after child bearing (Australian Bureau of Statistics, 1993c: 120).

Recently women's employment has been disproportionately concentrated in part-time employment. In August 1992, 43% of employed women worked part-time compared to 11% of employed men (Australian Bureau of Statistics, 1993c: 124). As a result, raw labour force participation figures tend to give a misleadingly large impression of the hours that women commit to the paid workforce.

Over this same period men's labour force participation has fallen slightly but men's age specific labour participation does not diminish during the child rearing years. The curve of married women's age specific labour force participation has a dip in the peak child-bearing years giving it a characteristic M-shape. The dip in the M-shape is getting less pronounced as the end of the twentieth century approaches. By contrast, the men's curve over these ages is flat. In 1992 only a small proportion of men (5.4%) answered that home duties or child care were their main activity whilst not in the labour force, compared with the overwhelming proportion (70.6%) of women, not in the labour force, who gave this as their main activity (Australian Bureau of Statistics, 1993c: 147).

The information cited above is national information but for the purposes of this comparison it is important to know about Sydney in Quarter 2 (May-June). When labour market information is assembled for the month of May in Sydney in the year of each survey, this shows that women's paid work hours rose while men's fell⁹. When averaged across all those aged 15 years and over, women's paid work hours rose by 42 minutes per week. Over the period between 1987 and 1992 the rise in women's weekly hours of paid employment resulted from the combined influence of higher hours among employed women and a higher proportion of women in the age range 15-64 years in the labour force. Like the national data, the Sydney labour force data for women shows a weaker M-effect in 1992. This reflects the smaller impact of child-bearing on women's labour market activity. The magnitude of women's increase hours of paid work would perhaps have been greater if the survey had fallen at a similar point in the business cycle. The timing of the surveys relative to peaks and troughs of the business cycle may have diminished the effects of longer term trends. In 1987 the labour market was just coming off its 1986 peak while in 1992 the labour market was still stuck in the trough of the 1990-1 recession (Australian Bureau of Statistics, 1994c: 6, 8).

When hours of paid work were averaged across all those aged 15 years and over living in Sydney, men's hours fell 62 minutes per week, over the period from Quarter 2 1987 to Quarter 2 1992. The ageing of the population, longer education, unemployment, and the end of compulsory retirement at age 65 years in New South Wales have all contributed to this fall. The effects of ageing and longer schooling are apparent when those not in the labour force are excluded from consideration. If only men in the labour force are considered, mean hours of paid work fell by 29 minutes per week over the five year period. Some of this decline is due to the increase in the rate of male unemployment. In Sydney the rate of male unemployment rose from 7.12% in May 1987 to 9.13% in May 1992. For those Sydney men who were employed in May 1992, the average hours of paid work were 40 hours 29 minutes per week, a rise of 22 minutes per week since May 1987.

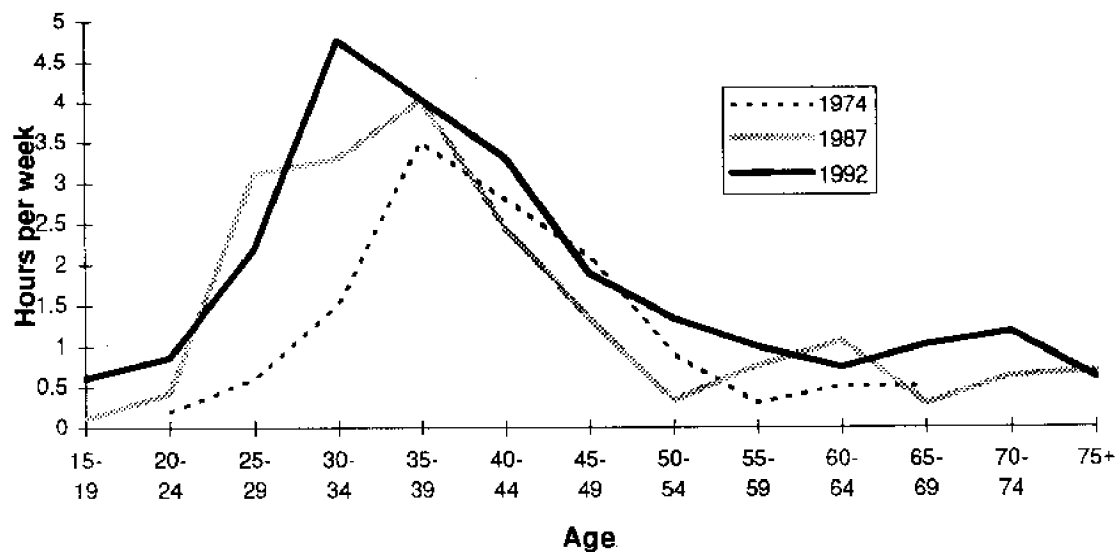
The time spent in child care, as is conventional, is shown here as an average for all men or all women, regardless of whether they have children. It is to be expected that in the light of declining fertility there would be a distinct drop in child care time between 1974 and 1987. On the basis of the combined effect of declining fertility and the increased labour force participation presented above, one would anticipate that between 1987 and 1992 child care time would decline further or at least remain steady. The data on the changing

use of time, however, show that for both men and women there is a totally unexpected rise.

Less Absent Fathers?

Among men no other change in their non-market work activities is as clear or as unidirectional as the increase in time devoted to the care of children. On average, the time men spend in child care has increased by 21 minutes per week between 1987 and 1992. There are fewer than five chances in one hundred that the judgement that men's child care time has increased is based on an accident of sampling (see Table 2). While men have undoubtedly increased their time spent in child care, this does not mean that they are now taking a greater share of parenting. Women have also increased their child care time, so that both parents increased their child care activity and the relative shares of child care have remained steady over the 5 year period from 1987 to 1992 (see Table 1). The increased time men spend parenting is a trend that has been evident in Australian data since 1974 and is consistent with findings elsewhere (Vanck, 1974:117, Michelson, 1985; Niemi 1988).

Figure 10: Men's Time Spent in Child Care - 1974, 1987 and 1992 (Hours per week)



When interpreting the change between 1974 and 1987 it is important to bear in mind the fact that this is one of the areas of unpaid work where Melbourne and Sydney have significant differences and the standardisation strategy has not been so successful. The time spent in child care by men living in Sydney in 1974 would probably have been higher. Using data for men in Melbourne is likely to understate the amount of child care time by an average of half an hour a week. While this has the effect of exaggerating the rate of change in men's time devoted to child care between 1974 and 1987, it is still probable that there was some rise in men's child care activity and it does not affect the age specific conclusions.

In child care time there is, naturally enough, a characteristic peak around the child-bearing years. Figure 10 shows the strength of age-specific changes in men's child care time. There are two outstanding effects that immediately strike the eye. Both concern the timing of the changes. The first and most striking effect is the historical movement in the age of peak child care time. In 1974 and 1987, most men could expect that over their lifetime their highest engagement with child care would come when they were between 35 and 39 years of age. By 1992 this period of peak child care activity occurred a full five years earlier. Child care time, in 1992, is highest among those aged 30-34 years. Among men aged 30-34 years, there is a significant increase ($p < .01$) of 1 hour 52 minutes per week between 1987 and 1992. This new, earlier peak is also a higher peak than ever before. It is possible that the earlier and higher peak indicates that fathers are more likely to be involved with infant children than in the past. There may also be some grounds for investigating the influence of fathers being present at the birth of their children and the effects of the limited extension of parental leave available to men.

The second clear age specific change concerns the extension of child care time. While the time spent in caring for children among men age 35-39 years (the former peak years for child care) in 1992 is practically identical with the time spent by this age group in 1987, the time spent by 40-44 year old fathers is significantly ($p < .01$) above the level of their counterparts in 1987. The magnitude of this change is 1 hour 3 minutes per week. The extension of peak child care years is consistent with the twin trends toward men, regardless of age, taking responsibility for child care, and the demographic shift toward 'postponed' child bearing.

It is worth noting that over the most recent period, the change in men's child care time has come chiefly from a significant ($P < .005$) increase in the time men spent in physical care and minding of children. Men's participation in this activity increased by 31 minutes per week between 1987 and 1992. The rise in physical child care time for all men was led by men age 30-55 years, with significant ($P < .05$ or better) increases of up to 1 hour 11 minutes per week.

When the components of care are considered individually, there is no significant change over this same period in the time men of all ages spent teaching/helping/reprimanding or playing/reading/talking. Indeed, time spent teaching/helping/reprimanding fell significantly ($P < .0001$) among men aged 35 to 44 years. In relation to time spent playing/reading/talking to children age specific changes are mixed, the significant ($P < .01$) increase among men aged 30-35 years is cancelled out by the significant decrease ($P < .05$) among 35-40 year old men.

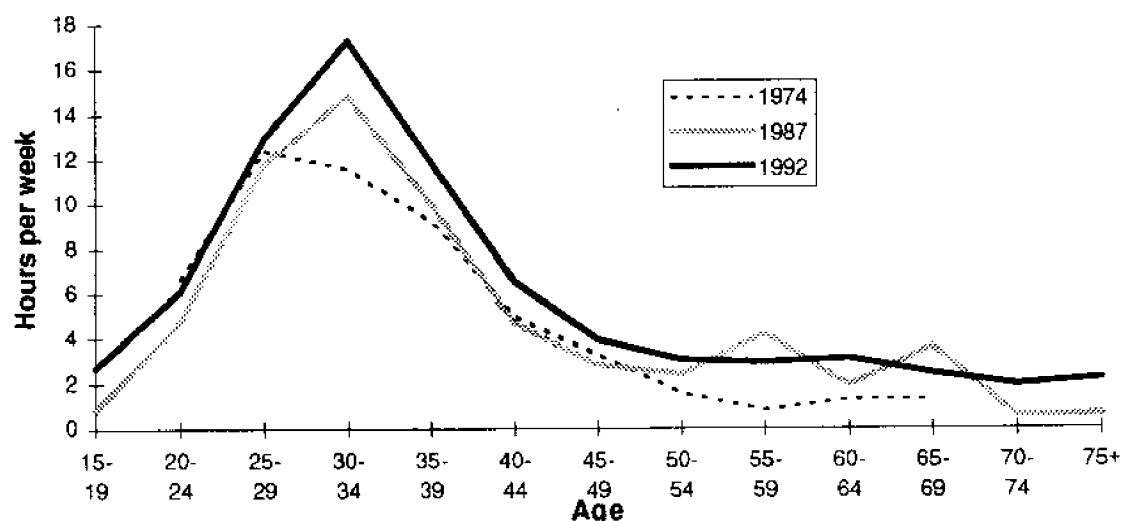
An analysis of men's time spent in child care by birth cohorts reveals an older change and a newer, more complicated set of changes. For men born before World War II there is a progressive tendency for child care to contract into a narrower age range. For those born in 1933 child care time at age 50 years is considerably lower than for men born in 1928, which is lower in turn at age 60 years than for men born in 1923. This may reflect the

wartime postponement of fatherhood. For men born after World War II there is a progressive tendency for higher child care time among younger men, a trend which is reversed among men born in 1959 or later.

More work for mother?

Nothing is so unexpected and so surprising than the finding that women increased their time spent in child care. In the context of a substantial fall in the time women devote to domestic activity, only time spent in child care activity has seen a substantial movement against the stream. Birth rates, the timing of births, the growth of child care, and increased labour force participation, all seemed to speak against the possibility of an increase in women's child care time. Indeed, there has been publicly expressed anxiety about what was assumed to be women's enforced neglect of their children (Reiger, 1991; Ochiltree, 1994).

**Figure 11: Women's Time Spent in Child Care - 1974, 1987 and 1992
(Hours per week)**



The increase has been small (1 hour 24 minutes per week) but significant ($P < .05$). Time spent in child care has been increasing steadily since 1974 and Australia can be assumed to have followed a pattern similar to the United States, probably since the late 1920s (Vanek, 1974: 117). The standardised mean time spent in child care by women in 1992 was 7 hours 14 minutes per week. The reader needs to bear in mind the restricted nature of activities coded as 'child care and minding'. It includes only those activities that involve interaction with the child or are expressly performed for the child only (for example, preparing baby food). Other domestic activity such as preparing food for all the family, tidying after children or washing nappies would be coded to 'food preparation', 'other domestic' (cleaning) and 'laundry' respectively (Australian Bureau of Statistics, 1988:74-76; Australian Bureau of Statistics, 1993b:44-47). Furthermore, these are figures for 'primary' activities only, that is, when child care is listed as the main activity by the

respondent. If child care is nominated as a 'secondary activity' - an activity that accompanies a main activity other than child care - then it is considered that the magnitudes involved would be roughly up to 300% greater (Australian Bureau of Statistics, 1993a: 8, 15).

Although women's child care activity time has risen across all ages, there are clear traces of changing timing of births. This is most clearly seen when comparing the curve of women's child care time in 1974 with those of later surveys. The peak age for child care activity among women in 1974 was 25-29 years, after which time it began a series of stepped declines. In both 1987 and 1992 the peak falls in the category age 30-34 years. While women aged 25-29 years spent a similar quantity of time in child care activities in all surveys, among 30-34 year old women child care time increased by 3 hours 14 minutes per week between 1974 and 1987 and by a further 2 hours 16 minutes per week in 1992. Over the eighteen years between 1974 and 1992 the increase in child care activity totalled 5 hours 40 minutes per week for women in this age group.

The analysis of women's time spent in child care by birth year cohorts confirms the pattern of shifts in the timing and the number of births. For women born before 1938 there is a perceptible tendency for their child-rearing time to diminish with each successive cohort. After a period of transition this trend towards a younger motherhood reverses for women born after 1948. It is among those women born after 1948 that the tendency towards spending increased time with young children seems to be taking hold.

In the five years between 1987 and 1992, physical care and minding of children has been the only component of child care to show a significant ($p < .0001$) mean increase regardless of age. In this period mean child care time has increased 1 hour 41 minutes per week. The large rise in the time devoted to physical care and minding of children among women aged 30-44 years has been the most outstanding feature of this change. Among 30-39 year old women this time has risen by three to three and a half hours per week, while among 40-44 year old women it has risen by 2 hours 15 minutes per week. In relation to teaching/helping/reprimanding children the only significant ($P < .005$) change occurs among women aged 40-44 years whose time devoted to this child care activity has fallen by 21 minutes per week. Also among women in the age groups 20-24 and 30-34 years there has been a significant decline ($P < .05$ and $P < .005$ respectively) in the time devoted to playing, reading and talking with children. Women aged 20-24 years reduced their time spent in playing, reading and talking with children by 22 minutes per week and among women aged 30-34 years, time spent in this activity has declined by 39 minutes per week.

The finding that time spent with children has increased in the face of a variety of changes which have been presumed to diminish the time and attention given to children, raises a complicated set of issues. Clearly, what we are dealing with here is a widely held social anxiety which is contradicted by the facts. Time spent with young children simply has not diminished. It may be that younger children go to bed later than they did in the past, sleep more often in the middle of the day while at child care and so on, but they have *more*

rather than less contact with both father and mother. So why is there a widespread fear that children are being deprived of parental care?

The sociologist Stan Cohen introduced the term 'moral panic' to describe the process by which 'an inchoate sense of unease' becomes transformed into public questioning of 'where will this all end?' and emerges as the demand 'that this sort of thing can't go on forever...something must be done' (1980: xxiv, 17). Cohen argues that the study of this phenomenon should be located in the field of collective behaviour - an academic discipline, which has generally studied more extreme 'crowd' phenomena such as mass hysteria and riots (1980:11). A moral panic arises on the basis of some social dislocation, such as normative ambiguity or strain accompanying a significant social change - in this case perhaps the increased entry of women into the paid workforce. It requires, if not a mass delusion, then at least misperception, amplified by exaggeration and repetition, escalated through acts of dramatisation (often involving the pronouncements of professionals or 'experts'), followed by stereotyping (Cohen, 1980: 192, 198). Ultimately a 'condition, episode, person or group of persons' becomes defined as a 'threat to societal values and interests' (1980: 9).

It would be interesting to know how wide and deep-seated is this fear of 'parental deprivation' and whether it actually reaches the scale of a moral panic. The sociological literature to date suggests concern about the welfare of children with 'working mothers' is a powerful value among Australians (even amongst 'working mothers' themselves) (Reiger, 1991). Whatever the level of personal and social anxiety about these issues, the entry of more women into the labour force over the last eighteen years has not actually reduced parents time with their children. Some of the arguments against formal child care revolve on who should be the main and most significant source of care in a child's early life. While information about time use alone could never be sufficient to allay these anxieties, it makes these arguments less convincing if they must be made independent of the time parents devote to child care. At the same time it makes public agonising over damage to children more mysterious.

One possible explanation is rising expectations. If over the years mothers (who, as has been shown, do most of the parenting) are expected to do many more things for their children than an earlier generation of mothers, then it follows that the actual increase in time devoted to child care falls behind expectations that rise at a more rapid rate. Could expectation really be rising this fast? Ruth Schwartz Cowan reminds us just how much what was expected from mothers has changed in the period between the wars.

The average housewife... was expected to do things for her children that her mother would never have dreamed of doing: to prepare their special infant formulas, sterilise their bottles, weigh them every day, see to it that they ate nutritionally balanced meals, keep them isolated and confined when they had even the slightest illness, consult with their teachers frequently, and chauffeur them to dancing lessons, and evening parties... and the new theories of child care required constant attention from well-informed persons - persons who were willing and able to read about the latest

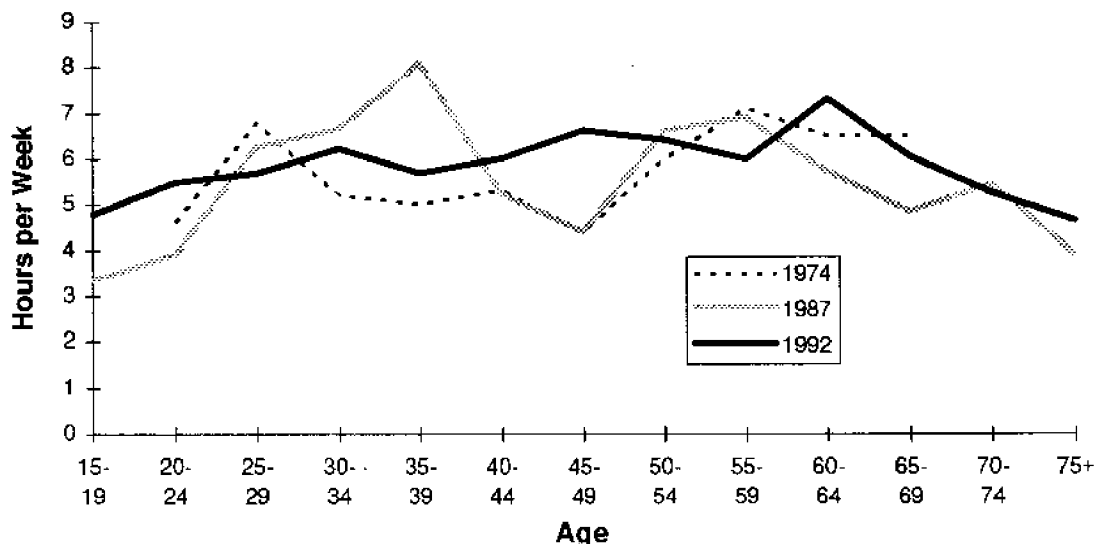
discoveries in nutrition, in control of contagious diseases, or in the techniques of behavioural psychology. These persons simply had to be their mothers (1985: 190).

When the more contemporary demands for sending children into the world with straight teeth, free of allergies, experienced in unstructured project-based homework, who are disciplined by rational argument rather than a beating with the razor strap or feather duster, and most importantly, who receive plenty of attention and affirmation of their individual identity, it is not difficult to imagine how these expectations have continued to rise.

A SHOP TOO FAR ?

In her celebrated 1974 article, Joann Vanek argued that the time (non-employed) housewives spent in housework had remained unchanged, perhaps even increased slightly since the 1920s (116). While the aggregate time spent in housework remained constant, the allocation of time between the tasks had changed. 'Perhaps trends affecting the household', Vanek suggests, 'have created as much work as they have saved' (Vanek, 1974:117). When Vanek decomposed the total housework time she did indeed find a number of these shifts in time use. Although preparing food and meal clean up continues to be the most time consuming aspect of housework, it has fallen tangibly over the century. However, Vanek found a compensatory increase in time spent in shopping and household managerial tasks.

**Figure 12: Women's Time Spent in Shopping - 1974, 1987 and 1992
(Hours per week)**



When all women are considered, there has been no significant change in the aggregate time (5 hours 37 minutes per week) women devote to purchasing goods and services and associated travel between 1987 and 1992. The curve of women's shopping by age is much

smoother in 1992 than in previous years. This is to some extent a by-product of the method of producing synthetic estimates for Sydney, May-June. It is, however, unlikely that the significant ($p < .05$) increase in time spent by 15-19 year old women can be attributed to such an effect. Nor, even allowing for the peakiness of earlier estimates, is the overall shape of the distribution of women's shopping time by age identical for the three years in question. In 1974 and in 1987 there are two peaks, one around the age of child rearing, followed by a trough in middle age, before another peak occurs as women approach the age of retirement. The major difference is that the 1987 timing of the 'child-rearing peak' is perceptibly later, being postponed from age 25-29 years to age 35-39 years. The timing of the 'retirement peak' is the same for both surveys. The 1992 distribution begins from a higher point, has no distinct middle-age trough, and has a later 'retirement peak', which now occurs at age 60-64 years compared with age 55-59 years in the earlier surveys.

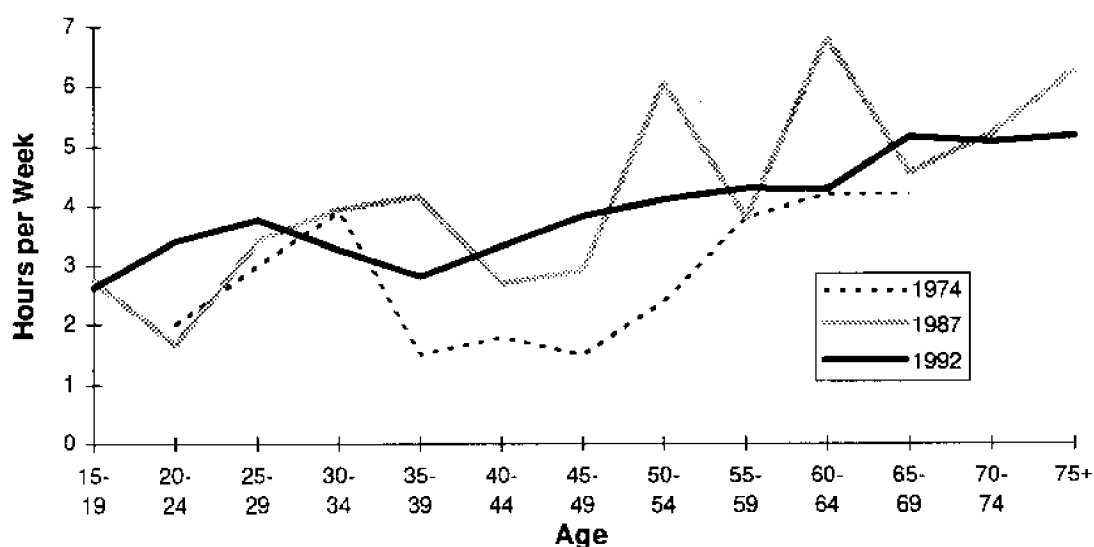
Over the period between 1987 and 1992 there has been a significant ($p < .005$) lengthening of the time women spend in travelling to and from shopping. The mean time women of all ages expended in travelling associated with shopping in 1992 was 1 hour 41 minutes per week, an increase of 26 minutes per week. In addition to the tendency toward 'self-service', described earlier, Judy Wajcman (1991) argues that the spatial design of contemporary cities around automobiles and regional shopping malls is likely to lengthen women's shopping times. Shopping has become more and more an activity associated with automobiles, inter suburban journeys and car parks. These changes in the nature of shopping are in some respects in accordance with the processes of change described by Vanek. While the time spent shopping has remained constant, the proportions spent purchasing and travelling have changed. This evidence, however, does not support Vanek's overall contention that time spent in household activities remains constant and only the shares of this activity have changed. Following Vanek's theory, the large reduction in women's cooking time, which is such an outstanding feature of the feature of the change in unpaid work between 1987 and 1992, would be purchased at the cost of a significant increase in shopping time.

By way of contrast to the typical vision of post-industrial society as society where most people find employment in the services sector rather than in manufacturing industries, Jonathon Gershuny (1978) has coined the term 'self-service society' to describe a tendency for people to produce their own final services instead of purchasing services in the market. This conception might easily apply to shopping where there has been a tendency for serve-yourself layouts in supermarkets, department stores, grocery stores, petrol stations, hardware stores, toy stores and even sex shops. These self-serve layouts displace home delivery and are predicated on the idea that people have their own transport. Shopping Malls are increasingly surrounded by larger and larger car parks.

While there is no clear support for the thesis that the decrease in cooking time has been purchased at the cost of extra time devoted to shopping, it is clear that within the overall time devoted to shopping an increasing proportion of that time is spent travelling to and from the shopping complexes and finding parking spaces.

There is some evidence of a generational shift in the time women devote to shopping, with women born before 1939 spending less time in this activity compared to those born after this date. Among the groups of birth cohorts - those born before the outbreak of World War II and those born after this date - the evidence of change revolves around the timing of life course events. The trough between the 'child-rearing peak' and the 'mature children peak' of shopping varies in its duration and depth. To make a confident interpretation of the generational pattern more time points than are currently available are required.

**Figure 13: Men's Time Spent in Shopping - 1974, 1987 and 1992
(Hours per week)**



Little has been written about the time men spend in shopping although men devote more time on average in this unpaid work activity than any other. Australian men spend almost as much time (4 hours 5 minutes per week), on average, in shopping than they do in cooking, laundry and cleaning combined (4 hours 19 minutes per week). The time men devote to shopping is also larger than that spent either in yard work (3 hours 30 minutes per week) or in home maintenance and car care (2 hours 20 minutes per week) (Australian Bureau of Statistics, 1993a: 8).

There appears to be some slight changes over the period of the three surveys in the time that men devote to shopping. The smoother curve in 1992 is probably the combined result of the much greater numbers in the 1992 survey and the method of standardising back to Sydney, May-June. The curve for each survey year has two periods of elevated activity separated by a trough in the middle years (35-49). Apparently this trough has become more shallow and narrower over the period from 1974 to 1992. Also the tendency for men's time spent in shopping to rise, especially in middle age, has become more apparent. However, the only age specific changes which are statistically significant are the increased time spent by men aged 20-24 years ($P < .01$) and the reduced time among men aged 60-64 years ($P < .01$).

Like women, men's travel to shopping time shows a consistent pattern of increase. Between 1987 and 1992 there has been an overall increase of 19 minutes per week in the time associated with travel to shopping, regardless of age. These changes have been particularly significant among men aged 20-24 year ($P < .01$) and men aged 35-54 years ($P < .05$).

Among the youngest generations of men, those born after 1952, there is a progressive tendency for shopping time to rise. Among men born between 1923 and 1938 there appears to be tendency for shopping time to peak earlier in life for each successive five cohorts. This generation of men has the highest peak shopping time of all birth cohorts. Those men born in 1922 or before show a pattern of elevated shopping time only in their advanced years.

CONCLUSION

The method used to standardise the results of three disparate time use surveys has proved itself generally successful. Comparisons with the Labour Force Surveys provided an independent confirmation of its precision. A further opportunity for testing will arise when the 1997 Time Use Survey is completed. The overall success of this technique has provided the first detailed body of information on Australians' changing use of time and a rare opportunity for us to study social changes, especially change in those typically 'invisible' activities in the household.

This analysis of time use surveys shows that there have been some important changes in the organisation of domestic labour. These changes are not those anticipated or debated in most discussion about these issues. While there has been some of the anticipated convergence between the average domestic labour time of women and men, most of this has come from the reduction in the time women spend in the kitchen, and in laundry, ironing and clothes care. Although the trend is not as definite or large, women are also increasing their activity in the traditionally masculine areas - home maintenance and car care. These changes have not been purchased at the cost of increased time spent in shopping. The proportion of total shopping time devoted to 'travel to shopping', however, has increased measurably. The only area where men have increased their activity has been in child care but this has not increased their relative share of child care because women's child care time has increased proportionately. Both fathers and mothers are spending more time with their children.

It seems justifiable to conclude that many of the theories we have used to guide our understanding of change in the domestic division of labour need some significant revision. The increasing significance of women as 'breadwinner' has not been accompanied by a corresponding increase in men's contribution to 'homemaking'. Whatever the modern linguistic conventions, the sexual stereotyping appears to be still very much alive. Division of domestic responsibilities according to gender remains the biggest influence, both on the quantity and kind of domestic work. The timing of peak domestic activity years seems still

be chiefly influenced by women's responsibility for the care of others. If there is to be a 'symmetrical family' it will be because women have become more like men and not because men have become more caring and aware of their family responsibilities.

This does not appear to be due to some lag in the process of adaptation - no generation of 'new men' is about to come down the pipeline. Younger men resemble their fathers at this same age in terms of the time they commit to domestic responsibilities. Among women as well, there is little evidence of a generational change working its way through the population. Instead, women of all generations appear to have reduced the time they spend cooking and doing laundry. In the terms of theories of sex role socialisation there is a pattern of the failure of non-sexist socialisation of young men combined with a pattern of successful re-socialisation of adult women of all ages. A most unexpected and puzzling pattern. Should we say that society changed the script for only the feminine sex-role or have men refused to follow the script designed for them (except for the part about caring for children)?

Even more complex problems of social psychology are raised by the findings on childcare because an increase in the time devoted to child care is accompanied by public anxiety about increasing parental neglect of children. This phenomena is reminiscent of a 'moral panic' which results from the normative strain imposed by a rapid social change (such as the rise of 'working mothers'). Perhaps the only plausible explanation of this persistent fear of neglect is that expectations regarding the time that parents should devote to their children are rising faster than the *actual* increase in parental time spent in caring for children.

Support for the theory of technologically determined change is mixed. The pattern of diffusion of the microwave oven in the years between 1974 and 1992 is consistent with the spectacular decrease in women's cooking time. The high proportion of households owning microwave ovens might also explain why the decrease is just as marked among those of retirement age as among young women. However, it is difficult to think of a recently introduced appliance that would have had a similar effect on women's laundry time. The proportion of households owning tumble dryers - the most likely appliance to have reduced time spent in laundry - has barely increased since 1987. It is unlikely that any domestic appliance explains the increase in parent's time spent in child care. A more definitive answer on how domestic technology changes time spent in housework could be provided if questions about the household's stock of appliances were included in the Time Use Survey. It is likely the change in the time allocated to cooking and laundry also occurred against a background of normative change about what constitutes nutritious, healthy food and an adequate standard of clothes care, etc. These normative changes might be a precondition for the introduction of appliances, and their direct effects may be more significant than the saving in time derived from any domestic machine. Moreover, there is a trend towards substituting particular forms of domestic labour with specialised market services. A clear example of this is the trend towards increased consumption of restaurant meals and take-away food. A more thorough attempt to study this question is

undertaken in another Occasional Paper in this series *Market Substitution for Unpaid Work: Determinants and Trends*.

Since the release of the data from the 1987 Pilot Survey of Time Use, these surveys have proven to be an important indicator of the progress towards sexual equality, and a guide to policy makers. This study has provided us with the first information about whose behaviour has changed and how rapidly. To a certain extent, there has been a policy concentration on getting men to assume their 'fair share' of domestic burdens. Implicitly this policy has assumed that reforming men (through providing opportunities for domestic participation and through community education campaigns) will bring the level of their domestic contribution up to a level comparable to that of women. An alternative approach would be concentrate on the supports which allow women to have domestic responsibilities similar to men. This study has drawn attention to the extent that, so far, it has mostly been a case of women moving in the direction of men and not the reverse. In doing this women have been progressively fashioning a domestic environment which permits them greater opportunities to participate equally in the labour market and in public. Examples of policy measures which support women's adaptation are child care, labour market equity programs, family-friendly work practices, appropriate town-planning and housing policies, and quality control for market services such as child care, food labelling and nutrition advice. To the extent public discussion has focused on the problems of men's adaptation we have overlooked the rapid and important changes achieved by women themselves. It is as though, like foreign pedestrians in Australia, policy-makers have instinctively crossed the road looking left, only to be struck by traffic coming from the right. This study highlights the significance of women's adaptation and the policy advantages of recognising and supporting these as important steps towards greater equality in Australian Society.

Notes

1. Although they are not strictly household productive activities, a group of 'voluntary work and community participation' activities - helping sick adults or adults with a disability, helping able adults, voluntary work, civic responsibilities and other participation, and the travel associated with these activities - might also be considered unpaid work. This approach is taken in the preparation of extended (also called 'satellite') national accounts by the Australian Bureau of Statistics (1990). The unpaid assistance provided by relatives and others in family and small businesses is grouped with (paid) labour force activities.
2. Australia is a signatory to the International Labour Organisation Convention 156, which urges that governments recognise and respect the rights of workers with 'family responsibilities'.
3. The United Nations has agreed to the establishment of a set of Satellite National Accounts which will value the output of household productive activities as part of GDP.

The Australian Bureau of Statistics produced an experimental estimate in 1990 and an occasional paper on the subject in 1994 (Australian Bureau of Statistics, 1990; 1994d)

4. See K. Mumford for a description of this change in women's labour force participation.

5. For a more extended discussion of the 'technologically determinist' viewpoint on household change see M. Bittman (1990).

6. The exceptions are that Melbourne men spent significantly less time in child care, while Melbourne women spent significantly more time in cooking.

7. In particular, this point has escaped the notice of the Economics Editor of the *Melbourne Age*, Tim Colebatch (*Age* 12 Oct. 1993, 4 Jan, 1994) and the former Director of the Australian Institute of Family Studies, Don Edgar, (*Family Matters* December 1993, No.36, p.2) who assume that any convergence between the times of women and men in these activities must chiefly be the result of men's greater contribution.

8. Graeme Hugo defines the total fertility rate as 'the average number of children that would be born alive to a woman during her life if she were to pass through all her child bearing years conforming to the age-specific fertility rates of a given year' (1992: 7).

9. These figures were kindly provided by the Labour Force Section of the Australian Bureau of Statistics, in particular through the efforts of Richard Phillips, Joanne Hillerman and Heather Crawford.

APPENDIX A

**Men's and Women's Time Spent in Cooking
by Age Group - 1974, 1987 and 1992**

(Hours per week)

Age	Men		Women	
	1974	1987	1974	1987
15-19		1.6		2.8
20-24	1.0	1.8	7.6	5.2
25-29	1.2	2.5	11.3	7.5
30-34	1.7	3.6	12.5	11.4
35-39	1.9	3.4	12.7	10.9
40-44	1.4	2.8	12.5	11.2
45-49	1.1	3.6	13.0	11.5
50-54	0.9	3.6	15.0	13.4
55-59	2.0	3.4	12.9	13.4
60-64	2.9	4.0	14.1	13.0
65-69	2.9	3.5	14.1	12.2
70-74		5.3		11.8
75+		6.2		11.3

**Men's and Women's Time Spent in Laundry
by Age Group - 1974, 1987 and 1992**

(Hours per week)

Age	Men		Women	
	1974	1987	1974	1987
15-19		0.1		0.6
20-24	0.1	0.4	3.5	1.9
25-29	0.1	0.3	5.4	3.4
30-34	0.0	0.6	6.0	4.9
35-39	0.0	0.3	6.5	5.5
40-44	0.3	0.3	6.3	5.9
45-49	0.6	0.5	5.4	5.7
50-54	0.1	0.3	4.9	5.1
55-59	0.4	0.3	5.1	5.1
60-64	0.2	0.4	4.6	6.5
65-69		0.4	4.6	4.2
70-74		1.6		4.6
75+		2.3		3.9

**Men's and Women's Time Spent in Cleaning
by Age Group - 1974, 1987 and 1992**

(Hours per week)

Age	Men		Women	
	1974	1987	1974	1987
15-19		1.0		1.7
20-24	0.3	0.3	5.6	2.4
25-29	0.6	0.8	7.3	3.8
30-34	1.1	1.2	6.9	5.2
35-39	0.4	1.0	9.1	4.6
40-44	0.5	1.1	7.5	6.0
45-49	0.4	1.4	7.6	7.6
50-54	1.4	0.5	8.0	6.1
55-59	1.5	0.6	9.4	6.5
60-64	1.1	1.3	8.6	6.4
65-69	1.1	1.5	8.6	6.7
70-74		3.8		6.5
75+		3.6		3.8

**Men's and Women's Time Spent in Garden, Lawn, Pool and Pet
Care by Age Group - 1974, 1987 and 1992**

(Hours per week)

Age	Men		Women	
	1974	1987	1974	1987
15-19		0.8		0.7
20-24	0.4	0.5	0.8	0.6
25-29	0.0	0.8	0.5	0.7
30-34	2.4	1.3	1.1	1.1
35-39	1.9	1.5	1.9	1.7
40-44	2.4	2.4	0.7	1.5
45-49	3.2	1.7	2.0	1.6
50-54	2.6	3.3	2.3	3.0
55-59	3.4	3.7	3.4	2.8
60-64	3.8	4.7	4.3	2.2
65-69	3.8	8.3	4.3	4.1
70-74		6.8		2.3
75+		7.7		2.4

Men's and Women's Time Spent in Home Maintenance and Car Care by Age Group - 1974, 1987 and 1992

(Hours per week)

Age	Men		Women	
	1974	1987	1974	1987
15-19		0.9	0.9	0.3
20-24	2.7	1.5	0.9	0.2
25-29	3.6	1.3	2.1	0.5
30-34	5.0	2.8	2.3	0.9
35-39	2.1	3.2	2.0	0.7
40-44	2.1	1.6	2.0	0.6
45-49	2.7	1.2	2.3	0.6
50-54	3.6	2.1	4.2	0.7
55-59	3.3	1.8	2.5	0.5
60-64	3.7	4.8	3.5	0.5
65-69	3.7	3.6	3.2	0.7
70-74		1.2	3.6	1.0
75+		0.5	1.9	0.4

Men's and Women's Time Spent in Child Care by Age Group - 1974, 1987 and 1992

(Hours per week)

Age	Men		Women	
	1974	1987	1974	1987
15-19		0.1		0.8
20-24	0.2	0.4	6.6	4.7
25-29	0.6	3.1	12.4	11.8
30-34	1.5	3.3	11.6	14.8
35-39	3.5	4.0	9.3	10.0
40-44	2.8	2.4	5.0	4.7
45-49	2.1	1.3	3.3	2.8
50-54	0.9	0.3	1.6	2.4
55-59	0.3	0.7	0.8	4.2
60-64	0.5	1.0	1.3	1.9
65-69	0.5	0.3	1.3	3.6
70-74		0.6		0.5
75+		0.6		0.6

APPENDIX B

Appendix B

The table below was produced by pooling the data from the 1987 and 1992 Time Use Surveys. An ordinary Least Squares Regression model was specified to control for region and seasonality (see standardisation procedure described in the body of the paper), and a series of dummies were entered for each age group at Time 1 (1987) and Time 2 (1992). Omitting a particular age group at Time 1 tests the significance the difference among the same age group at Time 2. The results of this procedure are summarised in Table 4 below.

TABLE 4: RESULTS OF THE TEST FOR AGE SPECIFIC CHANGE 1987-92 ; MEN

Activity	Age Group												
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
Housework	-ve*	.
Cooking	-ve*	.	.	.	.	.	.
Laundry	-ve**	-ve**
Cleaning	-ve**	-ve*
Garden, lawn, pool and pet	-ve*	.	.	.	.	.	.	.	.	.	.	.	-ve*
Garden, lawn and pool	-ve*	.	.	.	.	.	.	.	.	.	.	.	.
Home maintenance and car care	-ve*	.	.	.	.	.	.	.	.
Child care	.	.	.	+ve**	.	+vc*	.	.	.	.	.	.	.
Physical care and minding (own child.)	.	.	.	+ve**	+ve**	+ve**	.	+ve**	.	.	.	.	.
Teaching, helping, reprimanding (own child.)	-ve**	-ve**	.	.	.	.	.	.	.
Playing, reading to, talking to (own child.)	.	.	.	+ve*	-ve*	.	.	.	.	.	.	.	.
Shopping	.	+ve**	.	.	.	.	.	.	.	.	.	-ve**	.
Travel to shopping	.	+ve**	.	.	.	+ve*	+ve*	.	+ve*	.	.	.	.

* indicates the 1992 estimate is significantly ($P < .05$) different from the 1987 estimate.

** indicates the 1992 estimate is significantly ($P < .01$) different from the 1987 estimate.

Appendix B

TABLE 4: RESULTS OF THE TEST FOR AGE SPECIFIC CHANGE 1987-92 ; WOMEN

Activity	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
Housework	.	.	-ve*	-ve**	-ve**	-ve**	-vc**	-ve*	-ve*	-ve**	.	.	.
Cooking	.	.	-ve**	-ve**	-ve**	-ve**	-ve**	-vc**	-ve**	-ve**	.	.	.
Laundry	.	.	.	-vc*	.	-ve**	.	.	.	-ve**	.	.	.
Cleaning	.	.	.	.	.	.	+ve*	.	.	.	.	.	+ve**
Garden, lawn, pool and pet	-ve*	.	.	.	.	.	.	.	.	.	.	.	.
Garden, lawn and pool	-ve*	.	.	+vc*	.	.	.	.	.	.	.	.	.
Home maintenance and car care	.	.	.	.	.	.	.	.	.	.	.	.	.
Child care	+ve*	.	.	.	+ve*	.	.	.	.	.	.	.	.
Physical care and minding (own child.)	.	.	.	+vc**	+ve**	+vc**	.	.	.	.	.	.	.
Teaching, helping, reprimanding (own child.)	.	.	.	.	.	-ve**	.	.	.	.	.	.	.
Playing, reading to, talking to (own child.)	.	-vc*	.	-ve**	.	.	.	.	.	.	.	.	.
Shopping	+vc*	.	.	.	-ve**	.	+ve**	.	.	.	.	.	.
Travel to shopping	.	.	.	.	.	.	+ve**	.	.	+ve**	.	.	.

* indicates the 1992 estimate is significantly (P<.05) different from the 1987 estimate.

** indicates the 1992 estimate is significantly (P<.01) different from the 1987 estimate.

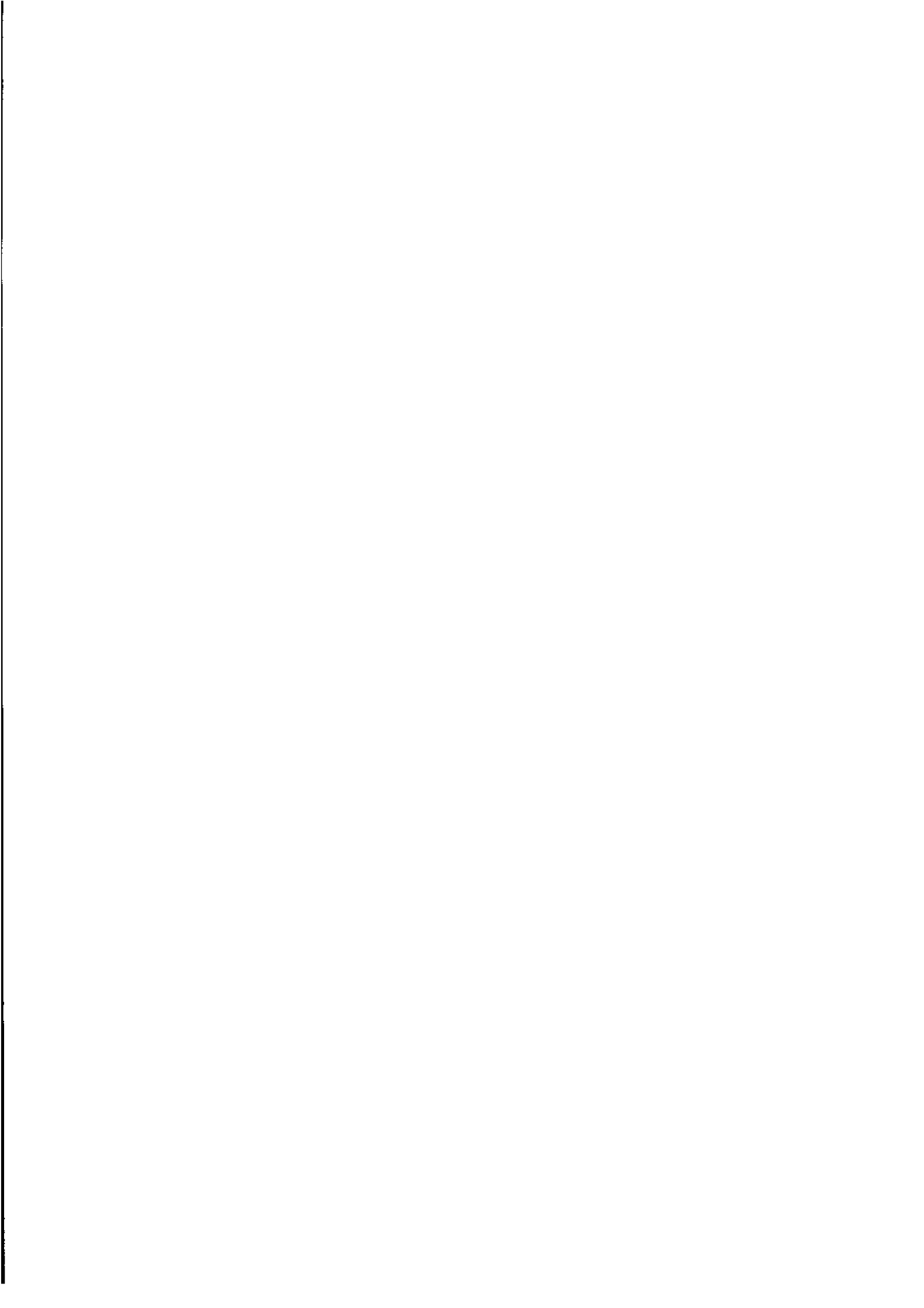
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