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Evidence from Australia

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Tony Eardley
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Abstract

The overlapping of activities is an important dimension of time use that has previously received little attention in economic analysis. Most time use studies have looked only at primary activities, ignoring the fact that individuals often perform two or more activities simultaneously. Using a two-adult household sub-sample from the 1992 National Australian Time Use Survey, this paper examines the incidence and determinants of overlapping activities among 3966 adult male and female household members.

The need to perform domestic work and child care as overlapping activities is influenced by a host of demographic, economic and social factors. Household lifecycle and composition, gender and cultural norms as well as individual characteristics such as sex, age, education and income all influence the extent to which people cope with increased demands on their time by overlapping activities. Employment status and characteristics as well as certain household-specific circumstances also play a role in a person's decision to overlap. The first part of the paper measures the effect of overlapping activities on time use data. An analytical model is developed and Tobit models are estimated to examine the effects of various factors on the incidence of overlapping work activity in the second part. Conclusions are drawn in the final section of the paper.

1 Introduction

Trying to squeeze more than a day's worth of activities into any one 24-hour period is becoming common practice among people living in western industrialised countries. One way of accomplishing this is by overlapping activities. The analysis of overlapping activities-those secondary and tertiary activities that are performed in addition to primary ones - is an important dimension of time use that is now gaining attention in economic, social and policy analyses.

This paper explores those factors that influence our decision to overlap activities, as well as the importance of the measurement and inclusion of these activities in time use research. A plethora of studies have acknowledged that overlapping activities are neither isolated phenomena nor a trivial issue for numerous reasons. Overlapping activities are also termed 'multi-tasking', 'polychronic time use' (Lane, Kaufman and Lindquist, 1989; Arndt, Gronmo and Hawes 1981), 'primary and secondary activities', 'concurrent activities' (Hendrix, Kinnear and Taylor, 1979; Hill, 1985; Juster and Stafford, 1985, 1991), and 'joint production' (Peskin 1982)).

Research is also demonstrating the serious consequences of overlapping activities, making this an urgent research agenda. First, measuring the extent to which people overlap activities can convey information about their quality of life, or lack thereof, those standard economic indicators do not (Floro, 1995; Folbre,1995). Quality of life issues are currently receiving greater attention from researchers and policy makers worldwide, leading to a growing recognition that time use data may be as important as income and consumption data for informing public policy (Smeeding, 1997; UNDP, 1995). The tendency to overlap can imply potential benefits in terms of increased productivity for an individual, or it can represent the intensification of work and the lack of discretionary or 'pure' leisure time (as in the case of overlap between work and leisure activities). Long hours of work coupled with prolonged periods of high work intensity negatively affect a person's health and well being (Baruch, Beiner and Barnett, 1987; Pittman, Solheim and Blanchard, 1996).

Second, the inclusion of overlapped activities (e.g. secondary and tertiary activities) in present time use surveys can provide a more accurate estimate of an individual's economic contribution, especially in the area of non-market production of goods and services (Bittman, 1996; Apps

and Rees, 1996; Benería, 1996; Folbre, 1997).[1] The significance of the non-market sector of the economy to social reproduction, human development, and economic growth is gaining considerable interest and concern. There is growing recognition that the unpaid labor of non-market production, particularly the care of people, underpins the functioning of the market economy. Unfortunately, most standard methods of collecting time use data tend to omit certain activities, especially when by their nature and specific locational context they are likely to be combined with another. The overlap of house-cleaning and child care activities may lead to the inclusion of one and the omission of the other. This inaccurate measurement results from the typical imposition of a rigid construct of time use, namely that a person performs only one activity at a given time.[2] The total set of daily activities measured must, therefore, be equal to a 24-hour constraint.

Third, a better understanding of how individuals and families organise their daily life can provide a superior assessment of the impact of economic change on living standards and individual well-being (Humphries, 1999). Individuals' and households' responses to cyclical fluctuations, particularly during periods of economic downturns and recessions, involve coping mechanisms that affect labor force participation, consumption patterns, household division of labor, and time use. This may include increased search for paid work or additional sources of income, the substitution of home-produced goods and services for market purchases, and so forth. Studies on homeworking and the informal sector in Bangladesh, Mexico, the United States, Germany and Spain point out the prevalence of overlapping activities among women workers in these sectors as they try to combine paid market work and domestic activities such as cleaning, cooking and childcare (Khandker, 1988; Skoufias, 1993; Floro, 1995). These coping strategies can affect not only the length of working hours but also the intensity of an individual's time use. Instead of choosing between two activities that need to be done, people may perform both simultaneously rather than singularly. Policy and academic debates on time allocation are insufficiently informed when they merely focus on the time use trade-off among

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1 These include care giving, subsistence farming, food preparation, volunteer work, house-cleaning, etc.

2 Interviews are often constructed to account for only one activity at a time, which precludes the possibility that some activities can actually be performed simultaneously.

primary activities, while ignoring production accomplished as overlapped activities.

Building on the works of Apps and Rees (1997), Bittman and Matheson (1996), Floro (1995), Folbre (1997), Ironmonger (1989), Juster and Stafford (1985, 1991), Robinson and Godbey (1997), and Schor (1992), this paper critically examines the incidence and nature of overlapping activities. An analytical model is developed to help predict an individual's inclination to perform overlapped economic (work) activities—those activities that are undertaken as secondary or tertiary. It takes into account the fact that a person's decision to do work - whether productive or reproductive (household) - involves not only the length of time but also the organisation of time.

The empirical study that we undertake in this paper differs from previous time allocation studies in two respects. First, it attempts to re-estimate the actual time spent in economic activities by taking into account overlapping activities. Secondly, it focuses its analysis on the amount of time spent in doing work as a secondary activity. Using a sub-sample from the 1992 National Australian Time Use Survey, Tobit tests are conducted to examine the various factors that are likely to affect the incidence of such activities by individuals.[3] The significance of this approach will be justified in the body of the paper.

The paper is organised as follows: Section 2 reviews the literature, discusses the data used in our empirical analysis, and briefly describes the effect of the inclusion of overlapped work activity in time use measurement.[4] Section 3 examines the interplay of economic and social factors such as gender and social norms, household structure, education and income – that can influence an individual's time use decision with regards to overlapping activities. An individual decision-making model and Tobit test results on the determinants of overlapped work activities are given in Section 4. A summary of the main points and policy considerations concludes the paper.

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3 The authors are particularly grateful to Patricia Apps for sharing the data set.

4 Our sub-sample consists of 3966 adult respondents, or 1983 couples, with an equal number of female and male respondents. Not included in the sample are those people living alone, and single-parent households.

2 Focus of the Study and Data Setting

The concept of overlapping activities remains underexplored in economic research, although a growing number of studies are beginning to address its significance. Studies on the informal sector in both developed and developing countries show the prevalence of women's tendency to overlap (Roldan, 1985; Benton, 1989; Lozano, 1989; Szebo and Cebatorev, 1990; Moser, 1993). Home-workers and other self-employed women frequently combine income-earning activities with domestic chores such as cleaning, cooking and childcare. Using 1992 Australian time use survey data, Bittman and Matheson (1996) and Ironmonger (1989) show that omitting overlapped activities in time use studies results in the inaccurate measurement of the labor time spent caring for children. As a result, the extent of gender asymmetry in the household division of labor is also underestimated (Bittman and Matheson, 1996). Cognisant of this problem, Apps and Rees (1997) and Apps, Killingsworth and Rees (1996) included overlapped activities in their study of Australian intra-family income distribution and labor supply responses to economic policy.

Consumer research and marketing studies have called into question the assumption underlying standard time allocation models that activities are undertaken 'one at a time' or monochronically, with a rigid 24-hour constraint (Lane, Kaufman and and Lindquist, 1989; and Kaufman, Lane and Lindquist 1991).[5] Their findings show that people will often overlap activities using time polychronically—to 'stretch' their time budgets (Hornick 1984; Lane, Kaufman Linquist, 1980; Kaufman, Lane Lindquist, 1991; Reilly, 1982; Zick, McCullough and Smith, 1996).[6]

While there are many facets of overlapping activities that present opportunity for more exploration, we limit our scope in this paper to an examination of the individual's decision to perform work as an

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5 Such premises, according to Kaufman, Lane and Lindquist (1991) tend to fit the 'traditional Western (male) view of time'.

6 Lane et al. (1989) observed that working parents (particularly mothers) deal with increased time pressure not only by reducing leisure and sleep but also by overlapping activities.

overlapped activity.[7] An implicit assumption in this focus is that this behavior demonstrates the existence of 'time-constraint'. When an individual finds the need to overlap work tasks with other primary activities, it highlights the insufficiency of monochronically-conceived time to satisfy the pressures incurred through his/her different roles.

There are several reasons why this is an important issue that needs more study. Firstly, an overlapped work activity performed simultaneously with another is more likely to increase the intensity of work when the primary activity also involves attention and/or effort.[8] Active child minding combined with house -cleaning leads to intensification of labor. Secondly, the overlapped work activity reduces the level of discretion if the primary activity is of a non-work nature, such as leisure. This can alter the amount of satisfaction an individual receives from the primary activity. Finally, the performance of unpaid work as an overlapped activity implies that the length of time spent in unpaid work is considerably longer than what standard time use measurement indicates.

The sub-sample used in this paper involves 3966 adult respondents - either married or de facto - taken from 1983 households. It is part of the 1992 Australian National Time Use Survey of approximately 3000 households, administered by the Australian Bureau of Statistics (ABS).[9] Tables 1, 2, and 3 present relevant household and individual

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7 These work activity categories include domestic activities, child care, shopping and volunteer work. In our data, market work is always reported as a primary activity. Non-work activities (ie: passive and active leisure, social activities, and education-related activities) are excluded from our analysis of overlapping activities.

8 Overlapping activities may increase one's satisfaction or increase productivity (ie: combining childcare with TV watching, or doing the laundry while preparing dinner). However, the 'pure' satisfaction derived from a leisure activity is diminished when necessity dictates its combination with a work activity. Also, overlapping can negatively affect the well-being and productivity of the worker when one or both of the combined activities requires considerable energy or uninterrupted attention. Several studies have shown that people experience differing levels of stress as they cope with time pressure by overlapping activities (Baruch, Beiner and Barnett, 1987; Roldan, 1985).

9 This is the country's first time use survey undertaken on a national scale, following a 1987 pilot survey conducted in Sydney.

Table 1: Selected Characteristics of Households

Household Type	Number	Percentage
Couples only	785	39.6
Couples + dependants (a)	660	33.3
Couples + dependants + non-dependants (b)	538	27.1
Total	**1983**	**100.0**
Households with children 0-4 years old	217	25.0
Households with children 5-14 years old	651	75.0
Total	**868**	**100.0**
Households where both spouses work full-time	474	23.9
All other households	1509	76.1
Total	**1983**	**100.0**
Geographic Location (c)		
Metropolitan	1130	57.0
Urban	636	32.1
Rural	217	10.9
Total	**1983**	**100.0**
Weekly Household Income (d)		
0–308	49	2.5
309-481	35	1.8
482-673	228	11.5
674-961	273	13.8
962-1154	157	7.9
1155-1537	270	13.6
1538-1923	249	12.6
1924-2307	198	10.0
2308-2884	172	8.7
2885 and more	208	10.5
No information	144	7.3
Total	**1983**	**100.0**

Notes:

a) All children under 15 years and disabled household members are considered dependants.
b) This category included all households that either have only couples and non-dependant children (15 years and older) and other non-dependant relatives, and households where there are both dependant and non-dependant children/others present.
c) Urban refers to towns or bounded areas where there are 500 or more people living. Rural refers to areas with a lower population density.
d) This refers to gross regular income measured in Australian dollars from all sources, including wages and salaries, business, government pension or benefit (including family allowance are not included), investments and other sources. Intra-family transfers such as a housekeeping or personal allowance are not included. Income was collected in ranges comparable with those used in the 1991 Population Census, on a current weekly basis.

characteristics of the sample data, including household type, geographic location (57 per cent metropolitan, 32.9 per cent urban, and 10.9 per cent rural), weekly household income, age, education levels, primary language spoken in the home, country of birth, employment status, main source of income, and weekly individual income. Note that nearly 60 per cent of our sample households have dependants and in almost a quarter of them, both spouses work full time (Table 1).

Information for the national time use survey was obtained through both personal interview and self-completion diaries (for two days). Respondents - members of each survey household over 15 years of ages - were asked to keep 'time journals' for two randomly chosen 24-hour periods.[10] They were instructed to record their main activity, any other activities undertaken simultaneously, where they were, and who was with them.[11]

This encouraged respondents to record all their activities, promoting better reporting of simultaneous or overlapping activities. Each activity is indicated as 'primary', 'secondary' or 'tertiary' when reporting joint activities. For purposes of our analysis, activities are classified in the following categories: work or economic activities, including labor market work, domestic activity, child care, shopping and volunteer work; leisure activities, including active leisure and passive leisure; and other activities, including sleep and personal hygiene, shopping and education.

It can be noted that the household sample reflects the 'broad middle class' structure of Australian society sample as seen in the average Weekly Household Income distribution (see Table 1). There are two reasons for this. First, Australia has a strong tradition of organised labour (Bell and Head, 1994) so that by the early 1990s - at the time the time use survey was undertaken - approximately 80 per cent of all workers were covered by national award wages and standardised work terms and conditions. This history has enabled Australian workers to bargain bonuses such as increased holiday leave, shorter work weeks, and higher compensation

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10 The decision to use diaries, in which people record their activities by time of day was based on considerable previous research, testing and evaluation in Canada, Europe and Australia (ABS, 1993: 30).

11 In an early study of the 1987 Time Use Pilot survey, Bittman (1991) explains lessons learned from the 1987 survey taken in Sydney led to the inclusion of columns allowing respondents to also report secondary activities.

Table 2: Selected Characteristics of Individual Respondents

	Women		Men	
Age	**Number**	**% of total**	**Number**	**% of total**
15-24	119	6.00	51	2.57
25-44	1003	50.58	941	47.45
45-64	647	32.63	680	34.29
65 and above	214	10.79	311	15.68
Total	**1983**	**100.00**	**1983**	**100.00**
Highest Educational Attainment				
Bachelor degree or higher	181	9.13	275	13.87
Trade qualifications(a)	81	4.08	592	29.85
Certificate or diploma(b)	556	28.04	317	15.99
Secondary school	212	10.69	169	8.52
Other (c)	11	0.55	14	0.71
No qualifications (d)	942	47.50	616	31.06
Total	**1983**	**100.00**	**1983**	**100.00**
Primary Language Spoken in Home				
English	1762	88.86	1763	88.91
Other	221	11.14	220	11.09
Total	**1983**	**100.00**	**1983**	**100.00**
Country of Birth				
Australia	1465	73.88	1412	71.21
Other	518	26.12	571	28.79
Total	**1983**	**100.00**	**1983**	**100.00**

Notes:

a) Trade qualifications refer to the apprenticeship system of training manual trades people. Apprenticeship mix on the-job training with technical study.

b) In the federal Australian system the regulations affecting certification (e.g. years of study) vary from state to state. Qualifications other than the apprenticeship or the formal education system (e.g. primary, secondary, and tertiary) fall into this category. These do not necessarily require completion of secondary education.

c) This group includes those who answered 'none of the above' and those still attending school.

d) This group includes those who have not received qualifications in any of the above categories

for overtime hours worked (OECD, 1994). Secondly, Australia had wide coverage of social welfare programs until the mid-1990s.[12]

As Table 2 shows, over 11 per cent of the respondents in our sample spoke a language other than English in their home with 26 per cent of women and almost 29 per cent of men born in a country other than Australia. One important reason is that in the 1970s, more immigrants were admitted to the country. By 1992, more than one in five of the population was born overseas, with one in six coming from a non-English-speaking country (Bertone, 1992). The men in the sub - sample are two and a half times more likely to hold full-time jobs than the women (see Table 3). Over 26 per cent of the female respondents hold part-time jobs while only five per cent of men do. Both men and women in this sub - sample reported significantly lower unemployment rates than the national average, with female respondents at 4.6 per cent and male respondents at 6.2 per cent compared to national averages of 10.4 per cent and 11.3 per cent, respectively.[13] Of those employed, the majority reported their main source of income accrued from wages and salaries (39.4 per cent for women and 54.5 per cent for men). Table 3 also shows that respondents drawing government pensions (19.6 per cent of women and 19 per cent of men) comprised the second largest group.

There are some limitations to the sub-sample data that need to be acknowledged. First, unlike the national sample data, our sub-sample does not provide information matching specific primary activities to specific overlapped work activities that we are measuring. As a result, we could not examine the degree of intensification of work made by overlapping. Second, actual wage earnings were not reported in the survey. Instead, respondents were asked to report gross weekly income (from all sources). To further complicate matters, this information is provided only in terms of income range categories. For analytical purposes, we make use of the latter as a proxy for wage earnings.

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12 These include (with the year of inception in parentheses): Age Pension (1901), Disability Support Pension (1991), Rehabilitation Allowance (1983), Sickness Allowance (1991), Child Disability Allowance (1987), Job Search Allowance (1991), Newstart Allowance (1991), Double Orphan Pension (1973), Sole Parent Pension (1989), Special Benefits (1945).

13 When the 1992 Time Use survey was taken, Australia was beginning to recover from a two-year recession. The unemployment rate in 1992 for males was 11.3 per cent and that for females was 10.4 per cent (OECD, 1994).

Table 3: Selected Economic Characteristics of Individual Respondents

	Women		Men	
Employment Status(a)	**Number**	**% of total**	**Number**	**% of total**
Full-time	510	25.72	1326	66.87
Part-time	519	26.17	108	5.45
Unemployed	91	4.59	123	6.20
Not in labour force	863	43.52	426	21.48
Total	**1983**	**100.00**	**1983**	**100.00**
Main Source of Income (b)				
Wages and salaries	782	39.44	1080	54.46
Business or trust	157	7.92	295	14.88
Government pension	388	19.57	377	19.01
Property	18	0.91	17	0.86
Dividends and interest	70	3.53	61	3.08
Superannuation	17	0.86	88	4.44
Compensation	8	0.40	5	0.25
Other sources	7	0.35	10	0.50
No income	536	27.03	50	2.52
Total	**1983**	**100.00**	**1983**	**100.00**
Weekly Individual Income(c)				
Nil income	536	27.03	50	2.52
1-96	175	8.83	36	1.82
97-154	299	15.08	212	10.69
155-230	175	8.83	113	5.70
231-384	284	14.32	284	14.32
385-481	162	8.17	257	12.96
482-673	159	8.02	400	20.17
674 or more	108	5.45	491	24.76
Not known	85	4.29	140	7.06
Total	**1983**	**100.00**	**1983**	**100.00**

Notes:

a) Employment status refers to the number of hours each person works at all jobs. Full time is 35 or more per week. Part time refers to those who usually work less than 35 hours per week. Unemployment refers to those who had looked for work in the previous four weeks. Not in the labour force describes those individuals who are neither employed nor unemployed.

b) As reported by participants. Typically, the business or trust category implies some form of self-employment or direct entrepreneurial activity. Dividend and interest implies that a person's main source of income is from his/her investments in public listed stocks and bonds (sometimes termed 'unearned income'). Superannuation is income from contributory pension funds. Compensation is income resulting from a successful claim that the individual was injured in the course of his/her work.

c) This refers to gross regular income from all sources, including wages and salaries, business, government pension or benefit (including family allowance), investments and other sources. Intra-family transfers such as a housekeeping or personal allowance are not included. Income was collected in ranges comparable with those used in the 1991 Population Census, on a current weekly basis.

Table 4 presents the participation rates and daily time spent by women and men in both primary and secondary (overlapped) economic activities. It shows women engage in labour market activities to a lesser extent than men, both in terms of participation rate and average time spent do. Men on average, spend 515 minutes per day doing market work compared to women's average of 377 minutes. The majority of both men (81.8 per cent) and women (98 per cent) perform at least some domestic chores as a primary activity.[14] It is interesting to note, however, that nearly twice the number of women (30 per cent) compared to men (18 per cent) perform additional domestic chores as an overlapped or secondary activity.

Table 4 also shows that child care is another activity that reveals gender differences. Whether as a primary or overlapped activity, women have a higher participation rate (42 per cent) and spend more time caring for children than men. Women and men, who performed at least five minutes of primary child care activity, reported an average of 157 and 75 minutes per day respectively. But the amount of time they each spent on secondary child care activity is substantially greater, on average of 478 minutes for women and 302 minutes for men.

Tabulation results for the entire sample of the national survey indicate that at least a third of every activity episode recorded by the diary method involves at least one other simultaneous activity (ABS, 1994: 4). Secondary work activities tend to contribute an additional 25 per cent of total working time of individuals, with the amount done by women (158 minutes per day on average) more than double that done by men (67 minutes per day on average). The differences in our sub sample are more striking. Overlapped work activities performed by the household head and spouse respondents in the sub-sample households contribute, on average, 31.6 per cent of total working time of individuals. Women's total time increases by an average of 218 minutes daily or nearly 44 per cent, while men's time increases by an average of 100 minutes or 20 per cent.

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14 Another study which examines the 1992 National Time Use Survey of Australia shows that men provide practically 80 per cent of their time in domestic activities to home maintenance (house repair, gardening, lawn and pool care) and car care. Women's domestic activities largely include cleaning, cooking, laundry and other indoor activities (Bittman 1996). Shopping, gardening and playing with children are the activities where women and men spent equal amount of time (1996: 12).

Table 4: Participation Rates and Average Time Spent in Economic Activities

Primary Work Activities	Women		Men	
	Participation Rate[a] (percentage)	Mean Time[b] (min. per day)	Participation Rate[a] (percentage)	Mean Time[b], (min. per day)
Labour Market Work	34.14	376.88	59.66	514.94
Household Work				
Domestic(c)	97.83	227.58	81.80	140.17
Childcare(d)	41.25	156.79	23.73	75.63
Shopping(e)	59.35	96.05	44.88	79.14
Voluntary Work(f)	27.63	104.09	20.37	130.16
Overlapped Work Activities (g)				
Household Work				
Domestic	29.25	49.30	17.75	40.21
Childcare	41.81	478.46	29.75	302.67
Shopping	2.72	36.48	2.57	33.63
Voluntary Work	3.03	69.41	2.62	85.38

Notes:

a) The percentage of women and men in the total sample who have performed at least five minutes of the activity in the 24-hour period.
b) The mean time spent by individuals who performed at least five minutes of the activity in the 24-hour period.
c) This includes food preparation and clean up, laundry, ironing, clothes care and other housework; garden, lawn and pool care, pet/animal care, home maintenance and car care; household management, transporting adult household members, and travel associated with any of the above activities.
d) This includes physical care and minding of own and other children, care for sick or disabled child, teaching own and other children, playing with own and other children, and travel associated with child care.
e) This includes purchasing goods and services, and travel associated with purchasing goods and services.
f) This refers to all unpaid community work including civic responsibilities, helping or caring for disabled adults, unpaid service for children (i.e. Boy or Girl Scouts troop leader), and travel connected with this work.
g) This includes all reported minutes in secondary and tertiary activities.

Table 5 presents an overview of time use, in terms of primary and overlapped activities for all men and women in our sub-sample. Taking into account the time allocated to primary activities alone, the results show a pattern consistent with other time use studies. Men spend the largest part of their waking hours in labour market work, while women's time is spent largely on domestic work, child care and shopping. With respect to primary leisure, women and men in the sub-sample seem to allocate roughly the same proportion of their time to these activities.

But when time use data takes into account overlapped work activities, a different picture emerges. Table 6 shows the change in the average time spent and the percentage distribution of time use when secondary activities are included. Two alternative methods, based on different assumptions, are used in accounting for secondary activities namely: primary and overlapped work activities are given equal weight (assumption 1); and overlapped work activities are given half the weight of the main activity (assumption 2). Table 6 also shows that child care is a household activity that is often combined with other activities. When both primary and secondary child care activities are taken into account, the original average time of 64.7 minutes spent by women in child care increases to 264.8 minutes (assumption 1) or to 164.7 minutes (assumption 2), an increase of 310 per cent and 150 per cent respectively. Men's average total child care time increases by 440% from 20.3 minutes to 110.4 minutes (assumption 1) or by 220 per cent to 65.3 minutes (assumption 2). The revised time use data which include both primary activities and overlapped work activities demonstrate the 'stretching of time' done by individuals. By performing overlapped work activities, women increased their economic activities by 15 per cent (assumption 1) or eight per cent (assumption 2). Men, meanwhile, 'stretched' their time by seven per cent (assumption 1) or three per cent (assumption 2). These results suggest that overlapped work activities, especially for women, are not trivial. There is also underestimation of the amount of unpaid labor used in the non-market production of goods and services if they are omitted. The preceding discussion highlights the importance of overlapping activities. In the section that follows, we explore the varied factors that may influence individuals' decision to overlap activities.

Table 5: Time Allocation of Women and Men on Primary and Overlapped Activities

Primary Activities	Women		Men		All
	Percentage Distribution	Ave. Time (min/day)	Percentage Distribution	Ave. Time (min/day)	Ave. Time (min/day)
Labour Market Work	**(8.94)**	**(128.69)**	**(21.33)**	**(307.22)**	**(217.96)**
Household Work[a]					
Domestic	15.46	222.66	7.97	114.78	168.72
Childcare	4.49	64.71	1.41	20.29	42.50
Shopping	3.96	57.08	2.47	35.61	46.34
Sub-total	**(23.91)**	**(344.45)**	**(11.85)**	**(170.68)**	**(257.56)**
Voluntary Work[a]	**(2.00)**	**(28.85)**	**(1.85)**	**(26.59)**	**(27.72)**
Leisure Activities					
Active[b]	3.12	44.93	3.25	46.77	45.85
Passive[c]	12.47	179.50	13.84	199.28	189.39
Sub-total	**(15.59)**	**(224.43)**	**(17.09)**	**(246.05)**	**(235.24)**
Other Activities					
Social[d]	6.11	87.93	4.86	70.00	78.96
Education	0.44	6.33	0.45	6.54	6.43
Sleeping[e]	43.01	619.32	42.56	612.92	616.12
Sub-total	**(49.56)**	**(713.58)**	**(47.87)**	**(689.46)**	**(701.52)**
Total	**100.00**	**1440.00**	**100.00**	**1440.00**	**1440.00**

Overlapped Activities	Women	Men	All
	Ave. Time (min/day)	Ave. Time (min/day)	Ave. Time (min/day)
Household Work[a]			
Domestic	14.59	7.23	10.91
Childcare	200.04	90.10	145.07
Shopping	1.02	0.90	0.96
Sub-total	**215.65**	**98.23**	**156.94**
Voluntary Work[a]	**2.12**	**2.24**	**2.18**
Leisure Activities			
Active[b]	11.91	8.56	10.23
Passive[c]	359.57	303.14	331.36
Sub-total	**371.48**	**311.70**	**341.59**
Other Activities			
Social[d]	2.09	1.04	1.57
Education	0.44	0.26	0.35
Sleeping[e]	25.92	30.91	28.42
Sub-total	**28.45**	**32.21**	**30.33**

Notes:

a) See footnotes to this variable in Table 4
b) This includes sport, exercise, and outdoor activities; hobbies, arts, crafts, performing music, drama, etc; and parlour games including computer and card games.
c) This includes such things such as reading, watching TV, listening to the radio, and communicating with others.
d) This refers to social life and entertainment, including socialising, attending concerts, art exhibits, zoo, etc.
e) This includes sleeping, eating and personal care.

Table 6: Comparison of Varied Measures of Time Use by Women and Men (in minutes per day)

Activities	Women			Men		
	Primary Only	Primary[a] & Overlapped	Primary[b] & Deflated Overlapped	Primary Only	Primary[a] & Overlapped	Primary[b] & Deflated Overlapped
Labour Market	**128.69**	**128.69**	**128.69**	**307.22**	**307.22**	**307.22**
Work						
Household Work						
Domestic	222.66	237.25	229.96	114.78	122.01	118.40
Childcare	64.71	264.75	164.73	20.29	110.39	65.34
Shopping	57.08	58.10	57.59	35.61	36.51	36.06
Sub-total	**344.45**	**560.10**	**452.28**	**170.68**	**268.01**	**219.80**
Voluntary Work	**28.85**	**30.97**	**29.91**	**26.59**	**28.83**	**27.71**
Leisure Activities						
Active	44.93	56.84	50.89	46.77	55.33	51.05
Passive	179.50	539.07	359.29	199.28	502.42	350.85
Sub-total	**224.43**	**595.91**	**410.18**	**246.05**	**557.75**	**401.90**
Other Activities						
Social	87.93	90.02	88.98	70.00	71.04	70.52
Education	6.33	6.77	6.55	6.54	6.8	6.67
Sleeping	619.32	645.24	632.28	612.92	643.83	628.38
Sub-total	**713.58**	**742.03**	**727.81**	**689.46**	**721.67**	**705.57**
Total	**1440.00**	**2057.70**	**1748.87**	**1440.00**	**1883.48**	**1662.20**
Change		+617.70	+308.87		+443.74	222.20

Notes:

a) This is the sum of time (in minutes) spent in each activity, whether primary or overlapped. Primary and overlapped activities are given equal weight.

b) In summing the total time spent in each activity, overlapped activities are given half (.50) the weight of primary activities. This is based on the alternative assumption: that individuals focus less energy and/or attention on those activities that are considered secondary and/or tertiary (overlapped).

3 Determinants of Overlapped Activities

The extent to which a person performs work as an overlapped activity depends on a variety of economic, demographic and social factors. These include social norms, household lifecycle and composition, individual's educational attainment, sex, income and employment status.

Prevailing social and gender norms - 'men take out the garbage', 'women are responsible for the children', etc, - influence the household division of labour. Although the labour force participation of women has increased significantly worldwide, including in Australia, over the last three decades, market work is still perceived to be the primary role of men and

that of household maintenance and child care to be women's principal work domain. These distinct social constructs have a number of implications. First, they influence the sexual division of labour within the household creating time pressure for many women as they are confronted with a multiplicity of roles (Horna, 1989; Moser, 1993; Bittman, 1996; Floro, 1995; Creighton, 1999). Second, they affect the individual members' perception of time itself. Some marketing and consumer research studies argue that men, especially from western cultures, 'have been trained to focus on doing one thing at a time or processing time monochronically' (Lane, Kaufman and Lindquist, 1989: 123).[15] Not all individuals, however, organise activities in 'linear, separable time'. Women, in particular, have been acculturated into, compelled to, and/or have consciously developed the ability to perform multiple activities simultaneously. In striving to meet their varied roles, many become adept at extending time through polychronic use. For these reasons, women are more likely to overlap activities than men are.

Demographic factors also influence the length and intensity of overlapped work activities. Persons in the ascendant phase of the household life cycle tend to experience increased time pressure, given the demands of their jobs and/or young children. As one moves into a later stage (e.g. older children, retirement, etc.), time pressure is expected to decline. Household composition, particularly the presence of children, also plays an important role in overlapping activities. Given the intensive nature of child care, demands on parents' time are high, increasing the likelihood to overlap.[16] The age of children in the household also sets the parameters by which parents can perform other tasks. Pre-school-aged children place a higher demand on adults' primary time than do older children, increasing the probability of parents overlapping work activities more frequently when young children are present in the household.

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15 In fact, the language and social norms of many Western cultures appear to be tied to the monochronic time view so that it is treated as though it were the only natural and logical way of organizing activities." This is particularly true for those involved in the business world and in those work activities where (monochronic) time is money" (Hall, 1983: 43).

16 For example, when child care as a secondary activity is taken into account, Ironmonger (1989) estimates that the care and nurture of children in Australia involves some 200 million hours per week based on the 1992 time use survey. This is in addition to what schools provide: about 60 million hours per week of formal and about 20 million hours per week of informal care.

Educational attainment is yet another factor that influences an individual's tendency to overlap activities. Higher education may inculcate greater expectations of how people use their time. They place more importance on the quality of the output or on the self-fulfilling elements of the tasks. This could manifest itself as higher standards of cleanliness, better care for the sick or elderly, more nutritious meals, or more involvement in their children's activities. Thus, the labor provided in such activities becomes inseparable from the worker (Himmelweit, 1995). Even with time pressure, persons may decide to cope with multiple demands on their time not by purchasing market substitutes such as fast food or nannies, but rather by overlapping their activities or multi-tasking (Zick, McCullough and Smith, 1996).[17]

The importance of cultural norms in both the allocation and organisation of time needs to be taken into account. Some cultures maintain stronger social and kinship ties than others, creating a tendency for work-sharing and extended family networks that provide assistance to a household. The absence or weakening of such ties in more individual-oriented cultures suggests a greater compulsion for those households to either rely on their own members' labour or on purchased labour to perform certain tasks. To the extent that recent immigrants in Australia may still maintain more kinship-oriented aspects of their cultural identity, one can observe differences between these households and non-immigrant households in their organisation of time use.

Individual earnings also influence the incidence of overlapping via the income effect and the intra-household bargaining effect. As an individual's income increases, household income also increases. Through the income effect, a person has increased access to capital goods that could potentially decrease (e.g. cleaning services, microwaves, etc.) or increase (more expensive and care intensive furnishings, etc.) the incidence of overlapping.[18]

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17 Schor (1992) shows that over time, households in industrialised countries like the United States have spent more time in housework because of increasingly higher standards for cleanliness, child care and other household activities. Presumably, this is partly due to overall higher levels of education.

18 Studies by Strober and Weinberg (1980) and Nickols and Fox (1983) show that income is a significant determinant of ownership of household 'time-saving' durables.

At the same time, an individual's personal income may influence her/his relative bargaining position in the household - particularly in those areas that are subject to negotiation (Fleck, 1998; Agarwal, 1994; Roldan, 1988). The division of household labor may be an area more open to negotiation than decisions such as the choice of residence. When an individual contributes a larger share of income to the household, he/she potentially wields greater influence on the manner in which household work is distributed. In this case, there may be less pressure for that individual to perform overlapped work activities.

An individual's employment status and job characteristics may also affect that person's time demand. The extent to which a person is engaged in market work full time or part time, is seeking a job, or not in the labour force can increase or decrease time pressure. One would expect that a fully employed person is likely to be more time-constrained that a part-time, unemployed, or non-working person (Probert, 1993). A person's employment status, to the extent that it contributes income to the household, can also affect the person's bargaining position within the household. Job location and the number of jobs held also can influence the person's organisation of time. A person with multiple jobs is more likely to be experiencing 'time-squeeze' than a person with one or no job at all. Home-based employment enables the person to perform more overlapping activities. The effect of all these factors on the level of overlapped work activities performed by an individual is examined empirically with the use of the Tobit method in the next section.

4 Analytical Model and Empirical Tests

The presence of overlapped activities implies that time allocation decisions of individuals are more complicated than normally assumed in the existing models.[19] Individuals decide not only how to allocate their time among various activities, but also whether to perform these activities separately or simultaneously. Assuming the person has prior knowledge about the nature of the task involved (i.e. the required physical energy, concentration and attention), then the manner of performing that work,

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19 Several time allocation studies have examined the observed allocated time units to specific activities including market work, non-market work (at home) and leisure from the input side (Mueller, 1984; Skoufias, 1993; Khandker, 1988). That is, the estimated equations consist of demand functions for time inputs in these non-overlapping activities.

whether market or non-market, involves two types of simultaneous time use decisions. These are: the choice of whether to perform it singularly or in combination with another activity;[20] and the length of time spent on the activity. For example, when a person allocates time to clean the house and do the laundry, he or she must determine both the amount of time to devote to these activities and whether to perform them individually or simultaneously.

In a simple model of overlapped activities, an individual will (mentally) weigh the costs and benefits of engaging in overlapping activities. The benefits (B_{ij}) typically refer to higher level of output produced per unit of time, such as having both clean clothes and clean house, or to simply getting the necessary tasks done within a given period, such as providing care to young children, preparing meals, etc. Costs (C_{ij}), on the other hand, may include a greater amount of stress, lower concentration and attention, or lower quality of the output (good or service) produced. The net benefit to the individual *i* in household *j* can be written as:

$$NB_{ij} = B_{ij} - C_{ij} . \quad (1)$$

The individual will engage in overlapped activities if NB_{ij} is greater than zero and the greater the net benefits, the more time the individual will spend in an overlapped or secondary work activity. More concretely, we specify the following reduced form equation for the desired number of hours spent on overlapped work activities:

where:

$$OL^* = x_{ij}ß + Z_j? + e_{ij} \quad (2)$$

$$OL_{ij} = \begin{cases} ? \; OL^*_{ij} & \text{if } OL^*_{ij} > 0 \\ ? \; 0 & \text{otherwise .} \end{cases} \quad (3)$$

The observed dependent variable, OL_{ij}, is the time spent on overlapped work activities. X_{ij} and Z_j are vectors of observable characteristics at the individual and household levels respectively, which influence the decisions involving overlap of activities. Both ? and ? are unknown parameters to be estimated. The random error term, $?_{ij}$, has two components:

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20 This preempts the choice of which activities to overlap.

$?_{ij} = ?_j + ?_{ij}$ (4)

Where $?_j$ is the unobserved household-specific effect, and $?_{ij}$ a random individual term uncorrelated with the household error component. Since our data contains both husbands and wives, the error terms are not independent across individuals leading to biased standard errors for the coefficient estimates. Consequently, we obtain unbiased estimates of variance by calculating robust (Huber/White) standard errors.

It should be noted that the above Tobit model imposes the same economic structure on both the decision to overlap and the length of time to spend on the secondary work activity; hence it uses the same regressors and parameters. Thus, for estimation purposes, the equation that determines the time spent by individual *i* in household *j* on overlapped work activities becomes a function of the same set of exogenous household and individual characteristics that determine whether or not that person will overlap.

Several Tobit models are estimated, each differing in the independent variables included. First we estimate a basic model (Model 1) to examine several individual and household-level factors that may influence the dependent variable, OL_{ij}. (see Appendix A). If the individual decides to overlap, then OL_{ij} is positive; if he/she decides not to, then OL_{ij} is zero. The individual-level independent variables, X_{ij}, in the basic model are the following: gender (SEX), lifecycle stage, represented by the age of the individual (AGE), educational attainment represented by the education dummy variables (EDUC1 and EDUC2), and individual income (WINC1 to WINC7).[21] Due to data limitations, we make use of income dummy variables to take into account both the income effect as well as the effect of individual bargaining power (via the influence of earnings) on the person's performance of overlapped work activities (Appendix A). The household-specific variables, Z_j include household composition, particularly the number of pre-school (0-4 years) (NCHIL14) and schoolage (5-14) children (NKIDS14), and social and cultural norms prevailing in the household represented by the dummy variable (OTLAN). The latter variable refers to whether the household member's primary language is not English and serves as a proxy for cultural norms

21 Ideally, one would prefer to use individual income as a proportion of total household income as a proxy for bargaining power. Due to data constraints, however, we are unable to create such a variable and instead, rely on the income level categories provided by the survey data.

that may influence work sharing patterns and labor allocation within the household.

The basic model is expressed as:

MODEL 1:

$OL_{ij} = [Sex_{ij} + Age_{ij} + Educ1_{ij} + Educ2_{ij} + Winc1_{ij} + ...Winc7_{ij}] + [Nchild14_j + Nkids14_j + Otlan_j] + ?_{ij}.$

Several extensions (Models 2-4) are made to the basic model by adding exogenous variables sequentially into Model 1 to test the robustness of the regression results. These variables, namely WRKHOM, KIDHLTH, and MULJOB, attempt to capture the specific circumstances that additionally motivate or enable the individual to perform overlapped work activities. Individuals who do market work at home (such as telemarketing, catering, etc.) are able to combine their job with other activities such as cooking, laundry work, or child care. Employment essentially carried out in this residential context allows more flexibility to perform overlapping activities. Persons caring for a chronically ill child or those with multiple jobs are more likely to experience 'time squeeze' and cope by performing overlapped work activities.

In Model 2, we add a job location dummy variable (WRKHOM) to the basic equation. This dummy variable indicates whether the person is doing market work at home or not.

MODEL 2:

$OL_{ij} = [Sex_{ij} + Age_{ij} + Educ1_{ij} + Educ2_{ij} + Winc1_{ij} + ...Winc7_{ij}] + [Nchild14_j + Nkids14_j + Otlan_j] + Wrkhom_{ij} + ?_{ij}.$

Model 3 also takes into account the health condition of children in the household (KIDHLTH), hence we have:

MODEL 3:

$OL_{ij} = [Sex_{ij} + Age_{ij} + Educ1_{ij} + Educ2_{ij} + Winc1_{ij} + ...Winc7_{ij}] + [Nchild14_j + Nkids14_j + Otlan_j] + Wrkhom_{ij}. + Kidhlth_j + ?_{ij}.$

Model 4 includes the dummy variable (MULJOB) that indicates whether the individual holds multiple jobs or not. This is expressed as:

MODEL 4:

OL_{ij} = [Sex_{ij} + Age_{ij} + $Educ1_{ij}$ + $Educ2_{ij}$ + $Winc1_{ij}$+...$Winc7_{ij}$] + [$Nchild14_j$ + $Nkids14_j$ + $Otlan_j$] + $Wrkhom_{ij}$. + $Kidhlth_j$ + $Muljob_{ij}$ + ?$_{ij}$

Finally, a variant of the basic model is estimated in Model 5 to examine whether employment status has a role in the determination of the incidence of overlapped work activity. Employment status not only affects the time constraint of the person but also his/her bargaining power in the household division of labor. A fully employed person is likely to contribute more to household income and is more able to negotiate work sharing among household members than one who is either working part time or not at all. We therefore substitute the employment status dummy variables (EMPST) in place of the weekly individual income dummy variables (Appendix A).[22]

MODEL 5:

OL_{ij} = [Sex_{ij} + Age_{ij} + $Educ1_{ij}$ + $Educ2_{ij}$] + [$Nchild14_j$ + $Nkids14_j$ + $Otlan_j$] + $Wrkhom_{ij}$+ $Kidhlth_{ij}$ + $Muljob_{ij}$ + $Empst1_{ij}$ + $Empst2_{ij}$ + $Empst3_{ij}$ + ?$_{ij}$.

The regression results for Models 1-5 are given in Tables 7A and 7B. As expected, the gender coefficients in all the models show that the length of overlapped work activities increases significantly if the individual is female. This is consistent with the findings of other studies that show the prevalence of this coping strategy among women who take on multiple roles that compete for both their time and effort.

We now turn to the variables that reflect demographic factors. Age is measured in the equations by the square of its value; the coefficient then represents the elasticity of overlapped work activities with respect to age. The strong negative sign shows that as the age of the individual increases (progressing through the more intensive work stages of the lifecycle), the dependent variable decreases significantly. Household composition, particularly the presence of children, are shown to have a very strong positive effect on the extent of overlapped work activities. Comparing the size of the coefficients, the presence of younger, pre-school children in the household tends to have a larger impact than that of older, school-age

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22 The individual employment status is correlated to some extent with the weekly individual earnings.

children. These results are consistent with our earlier finding that the time spent on child care increases dramatically if secondary activities are taken into account in time allocation (Tables 5 and 6). They reflect the intensive nature of this reproductive activity which demands such long hours that it is often performed in combination with other activities (Ironmonger, 1989; Bittman and Matheson, 1996).

The language dummy variable serves as a proxy for social/cultural norms that may influence work-sharing patterns and labour allocation within the household. The coefficients show that a person is less likely to perform overlapped work activity if the individual speaks a language other than English at home. The significance of this variable may be explained by the fact that recent or first-generation immigrants to Australia - from neighboring Asian countries, e.g. Vietnam, Philippines and Malaysia, and from Eastern Europe, e.g. Hungary, - tend to maintain more kinship-oriented aspects of their culture. Extended family networks and work-sharing practices provide assistance to these households and reduce the incidence of overlapped work activities.

The education dummy coefficients yield interesting results. A person who holds an undergraduate or higher degree is more likely to perform overlapped work activity than a person with less (formal) education. If a person has a trade degree or a certificate, the amount of time spent on overlapped work activities increases significantly, although not as much as a person with an undergraduate degree. The results suggest that educational attainment has an effect on individuals' expectations of themselves and their use of time. These may be manifested in more interactive child care, more attention to cleanliness, carefully prepared meals, or simply wanting to have a more 'productive' day. Individuals with more schooling spend more time working, commuting to work and shopping. These activities tend to increase their time demand, which they attempt to meet by performing overlapped work activities.

The individual income dummy variables in Models 1-4 serve as proxies for both the income and bargaining power effects on the amount of overlapped work activities performed by an individual. The negative sign suggests that as income initially increases (up to the third weekly income range A$ 155-230), the extent to which the person performs overlapped work activity diminishes but not significantly. But as the person's income increases further, particularly to the middle and upper income level ranges (over A$230), the decline in the incidence of overlap becomes significant. These coefficients suggest that the individual's gross weekly

earnings negatively affects the amount of overlapped work activities he/she performs, particularly above some critical threshold level (A$230 weekly). The higher individual earnings, the higher is the household income and the greater is the access to market-purchased substitutes such as babysitters, cooked meals, and 'time-saving' durables such as microwave ovens, and washing machines. An increase in an individual's earnings also affects her/his influence in household decision-making; the person is better able to negotiate the division of tasks within the household in his/her favor. As a result, there is less pressure for that individual to overlap work activities.

The variables added to Models 2-5 represent specific circumstances affecting a person's decision to overlap and provide additional insight into our analysis. The impact of job location is found to be significant at the five and ten per cent levels (see Models 2-5, Tables 7A and 7B). Although it is only a small proportion of our sub - sample, individuals who have home-based employment are likely to increase the amount of time in overlapped work activities. This is consistent with the findings of studies on homeworking or the practice of 'subcontracting' that indicate the strong likelihood of the workers (in most cases, married women with children) to combine paid work and domestic activities. The very strong positive effect of children's health condition on the dependent variable shows that a child with an adverse, chronic health condition (longer than six months) increases significantly the time demand on the (adult) individuals in those households (see Models 3-5). There is greater need for caregiving, increasing the incidence of overlapped work activities. As shown in Table 7B, Models 4 and 5, individuals holding multiple jobs are more likely to experience 'time squeeze' than those who hold only one job and hence they perform more overlapping activities.

The effects of the individual's employment status are shown in Model 5. Some findings stand out when the employment dummy variables are used: the strong positive sign of the coefficients suggest that a person who is either a part-time worker, unemployed or not in the labour force spends more time doing overlapped work activities than a fully employed individual.

This result seems to be somewhat surprising since one would expect the opposite. Full-time workers are expected to be more time constrained than part-time or non-workers. A number of alternative forms of the model were calculated including interactions between employment status and sex dummy variables, employment status and number of young

children, and the like. Such experimentation is justified as long as the results are viewed as part of sensitivity analysis. The findings regarding the relation of employment status and gender suggest that when the person is female, the effect of employment status is significant only for part-time employment; the difference on time spent in overlapped work activities between a female non-worker (one who is either unemployed or not in the labour force) and one who is fully employed is found to be weak. Presence of children, both young and school age, also weakens the significance of the effect of the employment dummy variables. Furthermore, it should be mentioned that the coefficient estimates and significance levels of the other variables remain essentially unchanged.

We also re-estimated many of the models with days of the week dummy variables added. The coefficient estimates of the variables listed in Tables 7a and 7b are qualitatively and quantitatively identical.

5 Concluding Remarks

In this paper, we examined the nature of overlapping activities and explored analytically the process by which individuals make decisions regarding time use. Using a sub-sample of 1983 households (or 3966 individuals) from the 1992 National Australian Time Use Survey, we showed that the effects of overlapping activities on the pattern of time use between men and women and on the level of effort required in some activities are non-trivial. Omission of overlapping activities leads to serious underestimation of economic contributions of individuals especially in non-market production. This confirms the observation, made in previous studies, of their importance, particularly with respect to a more accurate measurement of women's use of time and their economic activities. To the extent that overlapping activities can intensify work and affect the person's level of stress and discretionary leisure, their omission leads to an inaccurate assessment of the individual's well-being.

This study also examined the influence that pertinent economic, social and demographic factors may have on the incidence of overlapped work activities. Regression tests were performed using the Tobit method. The findings, which are found to be robust, showed the significant influence of gender, household lifecycle and composition, education, cultural norms, individual income as well as employment characteristics on the extent to which an individual performs overlapped work activities.

Table 7A: Coefficient Estimates from Tobit Model: Determinants of Overlapped Activities, Models 1-3 (robust standard errors in parentheses)

	Model 1	Model 2	Model 3
Constant	552.98	561.03	552.57
	(116.33)	(116.23)	(116.07)
Sex	155.67***	153.00***	146.53***
	(13.25)	(13.13)	(13.22)
Ln Age	-204.73***	-206.54***	-203.91***
	(28.93)	(28.92)	(28.86)
College Degree	118.00***	117.80***	117.84***
	(24.28)	(24.23)	(24.23)
Trade or Certificate	53.76***	54.07***	54.97***
	(15.02)	(14.99)	(14.95)
Language Spoken in	-97.19***	-95.34***	-92.58***
Home	(26.16)	(26.12)	(26.02)
Young Kids Present	260.82***	259.07***	257.20***
	(14.64)	(14.64)	(14.57)
Older Kids Present	174.81***	173.86***	168.52***
	(9.76)	(9.76)	(26.02)
Weekly Income 1	5.59	-0.60	-7.66
	(32.36)	(32.39)	(32.20)
Weekly Income 2	-40.54	-43.21	-42.06
	(26.56)	(26.66)	(26.62)
Weekly Income 3	-31.41	-35.66	-35.58
	(33.51)	(33.25)	(33.17)
Weekly Income 4	-118.70***	-122.17***	-120.36***
	(25.86)	(25.81)	(25.84)
Weekly Income 5	-142.81***	-144.54***	-140.61***
	(27.82)	(27.78)	(27.84)
Weekly Income 6	-99.60***	-103.04***	-99.29***
	(26.57)	(26.52)	(26.54)
Weekly Income 7	-132.82***	-134.56***	-130.49***
	(27.24)	(27.19)	(27.15)
Weekly Income	-94.76**	-103.44***	-100.93**
Missing	(39.36)	(39.58)	(39.61)
Work at Home		62.14**	60.77**
		(30.84)	(30.56)
Kid's Health Status			107.73***
			(36.80)
Sigma	361.07***	360.68***	359.90***
	(8.31)	(8.26)	(8.30)
Wald statistic	1202.36***	1212.21***	1242.36***
Log Likelihood	-16017.65	-16014.94	-16009.97

*** Significant at 1 per cent level.
** Significant at 5 per cent level.
* Significant at 10 per cent level.

Table 7B: Coefficient Estimates from Tobit Model: Determinants of Overlapped Activities, Models 4-5 (robust standard errors in parentheses)

	Model 4	Model 5
Constant	541.59	586.90
	(116.24)	(115.47)
Sex	146.26***	137.41***
	(13.21)	(13.39)
Ln Age	-200.92***	-251.02***
	(28.88)	(30.54)
College Degree	114.56***	114.48***
	(24.32)	(23.08)
Trade or Certificate	53.75***	55.36***
	(14.95)	(14.95)
Language Spoken in Home	-90.85***	-88.57***
	(25.94)	(25.84)
Young Kids Present	258.07***	252.76***
	(14.53)	(14.73)
Older Kids Present	168.05***	167.58***
	(9.94)	(10.03)
Weekly Income 1	-8.32	
	(32.16)	
Weekly Income 2	-43.57*	
	(26.62)	
Weekly Income 3	-39.83	
	(33.19)	
Weekly Income 4	-124.52***	
	(25.85)	
Weekly Income 5	-142.38***	
	(27.78)	
Weekly Income 6	-102.60***	
	(26.60)	
Weekly Income 7	-136.12***	
	(37.01)	
Weekly Income Missing	-107.46**	
	(39.12)	
Work at Home	53.39*	63.28**
	(30.97)	(32.14)
Kids' Health Status	107.04***	101.58***
	(36.85)	(37.28)
Multiple Jobs Held	58.29**	65.14***
	(27.66)	(27.71)
Part-time Job		107.81***
		(21.04)
Unemployed		100.84**
		(35.23)
Not in Labor Force		130.70***
		(20.85)
Sigma	359.59***	359.25***
	(8.29)	(8.34)
Wald statistic	1248.39***	1241.52***
Log Likelihood	-16007.34	-16005.62

*** Significant at 1 per cent level.
** Significant at 5 per cent level.

The importance of these results lies in the fact that information gained through time use data is now receiving greater attention worldwide among policy - makers and researchers concerned with measurement and analysis of policy impacts as well as with formulation of economic and social policies. The inclusion of information on overlapping activities in time use surveys provides a more accurate picture of individual's economic contribution and coping strategies. A more informed understanding of how individuals organise their daily life can provide a better assessment of the effects of economic and social policies on labour force participation, consumption patterns and individual well-being. This requires, however, intertemporal comparisons of time use that are beyond the scope of this study. As the Australian economy continues to undergo structural change, it will be interesting to pursue in future research the likely effect of policy regime changes on the incidence of overlapping activities reported in later time use surveys.

References

Agarwal, B. (1994), *A Field of One's Own: Gender and Land Rights in South Asia*, Cambridge University Press, Cambridge.

Apps, P.F. and R. Rees (1996), 'Labour supply, household production, and intra-family welfare distribution', *Journal of Public Economics*, 60, 99-219.

Apps, P.F. and R. Rees (1997), 'Collective labour supply and household production', *Journal of Political Economy*, 105, (1), 178-90.

Apps, P.F., M. Killingsworth and R. Rees (1996), *Human Capital, Household Production and Prices in Models of Labour Supply*, Working Papers of the ESRC Research Centre on Micro-social Change Paper 96-21, University of Essex, Colchester.

Arndt, J., S. Gronmo and D. Hawes (1981), 'The use of time as an expression of lifestyle: a cross-national study', in Jagdish Sheth, ed, *Research in Marketing*, 1-28.

Australian Bureau of Statistics (ABS) (1993), *Time Use Survey, Australia: User's Guide*, Catalogue No. 4150.0, ABS, Canberra.

Australian Bureau of Statistics (ABS) (1994), *How Australians Use Their Time*, Catalogue No. 4153.0, ABS, Canberra.

Baruch, G., L. Beiner and R. Barnett (1987), 'Women and gender research on work and family stress', *American Psychologist*, 42, (2), February, 130-6.

Bell, S. and B. Head (1994), *State, Economy and Public Policy in Australia*, Oxford University Press, Sydney.

Beneria, L. (1996), 'Thou shalt not live by statistics alone, but it might help', *Feminist Economics*, 2 (3), 139-42.

Benton, L. (1989), 'Homework and industrial development: gender roles and restructuring in the Spanish shoe industry', *World Development*, 17 (2), 255-66.

Bertone, S. (1992), 'Do we need a 'multi-economics?' in D. Horne, ed., *The Trouble with Economic Rationalization*, Scribe Publications, Newham, Australia, 70-5.

Bittman, M. (1991), *Juggling Time: How Australian Families Use Time*, Office of the Status of Women, Department of the Prime Minister and Cabinet, Canberra.

Bittman, M. (1995), *Recent Changes in Unpaid Work*: Occasional Paper, Catalogue No. 4150.0, ABS, Canberra.

Bittman, M. and G. Matheson (1996), *'All Else Confusion': What Time Use Surveys Show About Changes in Gender Equity*, Social Policy Research Centre Discussion Paper No. 72, University of New South Wales, Sydney.

Creighton, C. (1999), 'The rise and decline of the "male breadwinner family" in Britain', *Cambridge Journal of Economics*, 23, 519-41.

Fleck, S. (1998), *Power and Work: A Non-cooperative Household Bargaining Model*, unpublished Working Paper, Bureau of Labor Statistics, Washington DC.

Floro, M. (1995), 'Economic restructuring, gender and the allocation of time', *World Development*, 23, (11), 1913-29.

Folbre, N. (1997), A Time (Use Survey) for Every Purpose: Non-Market Work and the Production of Human Capabilities, Paper presented at the Conference on Time Use, Non-market Work and Family Well-being, November 20-21, Washington DC.

Folbre, N. (1995), 'Engendering economics: new perspectives on women, work, and demographic change', in Michael Bruno and Boris Pleskovic eds, Annual World Bank Conference on Development Economics, 127-66.

Hall, E. (1983), *The Dance of Life: The Other Dimension of Time*, Anchor Press/Doubleday, New York.

Hendrix, P., T. Kinnear and J.R. Taylor (1979), 'The allocation of time by consumers', in William L. Wilkie ed, *Advances in Consumer Research*, Vol. 6, Association for Consumer Research, Ann Arbor MI, 38-44.

Hill, M. (1985), 'Patterns of time use,' in F.T. Juster and F. Stafford, eds *Time, Goods and Well-Being*, University of Michigan, Institute for Social Research, Ann Arbor.

Himmelweit, S. (1995), 'The discovery of "unpaid work": the social consequences of the expansion of "Work"', *Feminist Economics*, 1 (2), 1-19.

Horna, J. (1989), 'The dual asymmetry in the married couple's life: the gender differentiated work, family and leisure domains', *International Journal of Sociology of the Family*, 19, 113-30.

Hornik, J. (1984), 'Subjective vs. objective time measures: a note on the perception of time in consumer behavior', *Journal of Consumer Research*,11, June, 615-18.

Humphries, J. (1999), 'Special issue on the family: introduction', *Cambridge Journal of Economics*, 23, 515-17.

Ironmonger, D. (1989), *Households Work: Productive Activities, Women and Income in the Household Economy*, Allen and Unwin, Sydney and London.

Juster, T. and F. Stafford, eds. (1985), *Time, Goods and Well-Being.* University of Michigan, Ann Arbor.

Juster, T. and F. Stafford. (1991), 'The allocation of time: empirical finding, behavioral models, and problems of measurement', *Journal of Economic Literature*, 29, June, 471-522.

Kaufman, C., P. Lane and J. Lindquist (1991), 'Exploring more than 24 hours a day: a preliminary investigation of polychronic time use', *Journal of Consumer Research*, 18, December, 392-401.

Khandker, S. R. (1988), 'Determinants of women's time allocation in rural Bangladesh', *Economic Development and Cultural Change*, 37, 111-26.

Lane, P., C. Kaufman and J. Lindquist (1989), 'More than 24 hours a day', in AMA Winter Educators' Conference: "Marketing Theory and Practice", American Marketing Association Chicago.

Lozano, B. (1989), *The Invisible Force: Transforming American Business with Outside and Home-Based Workers*, The Free Press, New York.

McGrath, J. and J. Kelly (1986), *Time and Human Interaction*, Guilford Press, New York.

Moser, C. (1993), 'Adjustment from below: low-income women, time, and the triple role in Guayaquil, Ecuador', in S. Radcliffe and S. Westwood, eds, *Viva: Women and Popular Protest in Latin America*, Routledge, New York.

Mueller, E. (1984), 'The value and allocation of time in rural Botswana', *Journal of Development Economics*, 15, 329-60.

Nickols, S. and K. Fox. (1983), 'Buying time and saving time: strategies for managing household production', *Journal of Consumer Research*, 8, 197-208.

OECD (1994), *OECD Economic Survey: Australia*, OECD, Paris, France.

Peskin, J. (1982), 'Measuring household production for the GNP', in K. K. School and K. Tippett, eds, *Family Economics Review*, Agricultural Research Service, Hyattsville, MD. 16-2

Pittman, J.F., C.A. Solheim and D. Blanchard (1996), 'Stress as a driver of the allocation of housework', *Journal of Marriage and the Family*, 58, (2), 456-68.

Probert, B. (1993), 'The overworked and the out-of-work: redistributing paid work, unpaid work and free time', in The Future of Work, Australian Council of Social Services, Sydney, Australia.

Reilly, M.D. (1982), 'Working wives and convenience consumption,' *Journal of Consumer Research*, 8, March, 407-18.

Robinson, J. P. and G. Godbey (1997), *Time for Life: The Surprising Way Americans Use Their Time*, The Pennsylvania State University Press, University Park, PA.

Roldan, M. (1985), 'Industrial outworking, struggles for the reproduction of working class families and gender subordination', in N. Redclift and E. Mingione, eds, *Beyond Employment: Household, Gender and Subsistence*, Basil Blackwell, Oxford, 248-85.

Roldan, M. (1988), 'Renegotiating the marital contract: intrahousehold patterns of money allocation and women's subordination: outworkers in Mexico City' D. Dwyer, and J. Bruce, eds, *A Home Divided: Women and Income in the Third World*, Stanford University Press, Stanford, 229-47.

Schor, J. (1992), *The Overworked American: The Unexpected Decline of Leisure*, Basic Books, New York.

Skoufias, E. (1993), 'Labor market opportunities and intra-family time allocation in rural households in South Asia', *Journal of Development Economics*, 40 - 277-310.

Smeeding, T. (1997), Time and Public Policy: Why do we Care and what Instruments are Needed?, Paper presented at the Conference on Time Use, Non-market Work and Family Well-being, November 20-21, Washington, DC.

Strober, M. and C. Weinberg (1980), 'Strategies used by working and nonworking wives to reduce time pressure,' *Journal of Consumer Research*, 6, (4), 338-48.

Szebo, L. and E.A. Cebotarev (1990), `Women's work patterns: a time allocation study of rural families in St. Lucia', *Canadian Journal of Development Studies*, 11, (2), 259-78.

United Nations Development Programme (UNDP) (1995), *Human Development Report 1995*, Oxford University Press, New York.

Zick, C.D., J. McCullough and K.R. Smith, (1996), 'Trade-offs between purchased services and time in single-parent and 2-parent families', *Journal of Consumer Affairs*, 30, 1-23.

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5.	Bruce Bradbury (1989), 'Family Size Equivalence Scales and Survey Evaluations of Income and Well-being', *Journal of Social Policy*, 18(3), July, 383-408.	52
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12.	Cathy Boland (1989), 'A Comparative Study of Home and Hospital Births: Scientific and Normative Variables and Their Effects', in *Celebrating a Revolution in Birth*: Proceedings of 10th National Homebirth Conference, Sydney, 19-33.	
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16.	Bruce Bradbury, Jenny Doyle and Peter Whiteford (1993), 'Trends in the Disposable Income and Housing Costs of Australian Families', Greg Mahoney, ed., *The Australian Economy under Labor*, Allen and Unwin, Sydney, 137-158.	71
17.	Peter Saunders (1991), 'Selectivity and Targeting in Income Support: The Australian Experience', *Journal of Social Policy*, 20(3), 299-326.	

18. Bruce Bradbury and Peter Saunders (1990), 'How Reliable are Estimates of Poverty in Australia? Some Sensitivity Tests for the Period 1981-82 to 1985-86', *Australian Economic Papers*, 29(55), December 154-81. 60

19. Russell Ross and Peter Saunders (1993), 'The Labour Supply of Sole Mothers and Married Mothers in Australia: Evidence from the 1986 Income Distribution Survey', *Australian Economic Papers*, Vol. 32, June, 116-133.

20. Russell Ross and Peter Whiteford (1992), 'Poverty in 1986: Aboriginal Families with Children', *Australian Journal of Social Issues*, 27(2), May, 92-111. 61

21. Peter Saunders and Peter Whiteford (1990), 'Compensating Low Income Groups for Indirect Taxes', *Australian Tax Forum*, 7(4), 443-64.

22. Peter Saunders (1990), 'Reflections on the Review of the HACC Program', in A. Howe, E. Ozanne and C. Selby Smith, eds, *Community Care Policy and Practice: New Directions in Australia*, Public Sector Management Institute, Monash University, Victoria, 201-12. 63

23. Peter Saunders and George Matheson (1991), 'Sole Parent Families in Australia', *International Social Security Review*, 44(3), 51-75.

24. Bruce Bradbury (1992), 'Unemployment, Participation and Family Incomes in the 1980s', *Economic Record*, 68(203), December, 328-42. 73

25. Peter Saunders (1991), 'Employment Growth and Poverty: An Analysis of the Australian Experience 1982-1990', in Michael Johnson, Peter Kriesler and Anthony D. Owen, eds, *Contemporary Issues in Australian Economics*, The Economic Society of Australia, Macmillan, Australia, 105-33. (Also excerpts in *ACTCOSS News*, 5 October, 12-14.)

28. Peter Saunders (1991), 'Efficiency and Effectiveness in Social Policies: an International Perspective', in T. P. Hardiman and Michael Mulreany, eds, *Efficiency and Effectiveness in the Public Domain*, Institute of Public Administration, Dublin, 78-117.

30. Peter Saunders and George Matheson (1991), 'An Ever Rising Tide?: Poverty in Australia in the Eighties', *Economic and Labour Relations Review*, 2(2), December, 142-71. 67

31. Peter Whiteford (1991), 'Are immigrants over-represented in the Australian social security system?', *Journal of the Australian Population Association*, 8(2), November, 93-109.

33. Bruce Bradbury (1993), 'Family Assistance and the Incomes of Low Wage Families', *Social Security Journal*, March, 1-18.

and
Bruce Bradbury (1993), 'Family Assistance, Replacement Rates and the Unemployment of Married Men', *Australian Bulletin of Labour*, Vol. 19, No. 2, June, 114-132. 70

34. Peter Saunders (1993), 'Recent Trends in the Size and Growth of Government in OECD Countries', in Normal Gemmell, ed., *The Growth of the Public Sector: Theories and International Evidence*, Edward Elgar, Aldershot, 17-33.

35. Timothy M. Smeeding, Peter Saunders, John Coder, Stephen Jenkins, Johan Fritzell, Aldi J. M. Hagenaars, Richard Hauser and Michael Wolfson (1993), 'Poverty, Inequality and Family Living Standards Impacts Across Seven Nations: The Effects of Noncash Subsidies for Health, Education and Housing', *The Review of Income and Wealth*, Series 39, No. 3, September, 229-256.

36. Peter Saunders and Michael Fine (1992), 'The Mixed Economy of Support for the Aged in Australia: Lessons for Privatisation', *Economic and Labour Relations Review*, 3(2), December, 18-42. 69

38. Sheila Shaver (1993), 'Body Rights, Social Rights and the Liberal Welfare State', *Critical Social Policy*, Issue 39, Winter 1993/94, 66-93. 72

39. Bruce Bradbury (1993), 'Unemployment, and Income Support: Challenges for the Years Ahead', *Economic Papers*, Vol. 12, No. 2, June, 14-31.

40. Peter Saunders (1993), 'Married Women's Earnings and Family Income Inequality in the Eighties', *Australian Bulletin of Labour*, Vol. 19, No. 3, 3-22.

44. Sheila Shaver and Jonathan Bradshaw (1995), 'The Recognition of Wifely Labour by Welfare States', *Social Policy and Administration*, Vol. 29, No.1, March, 10-25.

46. Peter Saunders, Björn Halleröd and George Matheson (1994), 'Making Ends Meet in Australia and Sweden: A Comparative Analysis Using the Subjective Poverty Line Methodology', *Acta Sociologica*, Vol. 37, No. 3, 3-22.

48. Peter Saunders (1993), 'Poverty and Inequality: Social Security in the 1990s', in J. Disney and L. Briggs, eds, *Social Security Policy: Issues and Options*, papers from the Conference, 'Social Security Policy: The Future', November, AGPS 29-48.

49. Peter Saunders (1994), 'Rising on the Tasman Tide: Income Inequality in Australia and New Zealand', *Social Policy Journal of New Zealand*, Issue 2, July, 97-114.

52. Peter Saunders, 'The Immigrant Dimension of Income Inequality' in J. Neville, ed., As the Rich Get Richer: Changes in Income Distribution, Committee for the Economic Development of Australia (CEDA), Sydney, 66-86.

53. Peter Saunders (1995), 'In Defence of a Poverty Line', *Just Policy*, No. 4, September, 9-16.

54. Peter Whiteford (1995), 'The Use of Replacement Rates in International Comparisons of Benefit Systems', *International Social Security Review*, Vol. 48, No.2/95, 3-30.

55. Peter Saunders (1995), 'Conditionality and Transition as Issues in the Basic Income Debate', in Income Support in an Open Economy: Basic Income Seminar, Victorian Council of Social Service and the Good Shepherd Youth and Family Services, Melbourne, 51-62.

56. Peter Saunders (1995), 'Improving Work Incentives in a Means-Tested Welfare System: The 1994 Australian Social Security Reforms, *Fiscal Studies*, Vol. 16, No. 2, May, 145-70.

60. Johan Fritzell and Peter Saunders (1995), 'Wage and Income Inequality in Two Welfare States: Australia and Sweden', in F. Engelstad, R. Kalleberg, A. Lura and L. MjØset, eds, *Comparative Social Research, Volume 15: Institutional Aspects of Work and Wage Determination*, JAI Press, Greenwich, CT, 187-229.
Also in *Comparative Social Research Yearbook*

62. Peter Saunders and Michael Fine (1997), 'Evaluation and Research in Social Policy', *Australian Journal of Social Research*, Vol. 3, No. 1, January, 75-94.

63. Peter Saunders (1996), 'Unpacking Inequality: Wage Incomes, Disposable Incomes and Living Standards', in *The Industry Commission Conference on Equity, Efficiency and Welfare, Conference Proceedings*, AGPS, Canberra, 225-55.

64. Peter Saunders (1996), 'Poverty in the 1990s: A Challenge to Work and Welfare', in P. Sheehan, B. Grewal and M. Kumnick, eds, *Dialogues in Australia's Future: In Honour of the Late Professor Ronald Henderson*, Centre for Strategic Economic Studies, Victoria University of Technology, Melbourne, 325-50.

65. Sheila Shaver and Michael Fine (1996), 'Social Policy and Personal Life: Changes in State, Family and Community in the Support of Informal Care' in Aged and Community Care Division and Office of Disability, Department of Human Services and Health, Towards a National Agenda for Carers, Workshop Papers, No. 22, AGPS, Canberra, 19-36.