AMERICAN TIME USE 1965-2003: THE CONSTRUCTION OF A HISTORICAL COMPARATIVE FILE, AND CONSIDERATION OF ITS USEFULNESS IN THE CONSTRUCTION OF EXTENDED NATIONAL ACCOUNTS FOR THE USA

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ABSTRACT

This project was funded by the Glaser Progress Foundation, and forms part of a wider programme based at Yale University and directed by William Nordhaus. The project provided approximately £150,000 to support the production and testing of a harmonised cross-time comparative micro-level file of diary derived US time-use data, suitable inter alia for the production of extensions to the national accounts to cover household and other unpaid production of goods and services.

The project has produced a new American Heritage Time Use Study (AHTUS) which brings together major US national samples of time diary based studies from each decade sine the 1960s. The project undertook a sequence of carefully controlled and fully documented data production activities; a complete collection of syntax files, providing a trail of transformations from the original data to the AHTUS, will be made accessible over the web. The result is a 36000 case micro-data file covering the period 1965-2003, with 45 classificatory variables and a 90-category classification of time use. The AHTUS time use data is presented both in its original sequential format, and with totals of daily time in each of the 90 categories, and also estimates of “secondary” childcare.

The majority of this report is devoted to the testing of the usefulness of subsets of the time use data for estimating the National Accounts extensions.

Section 2 of the report provides a brief overview of the theoretical considerations that lie behind the use of time-diary data in the calculation of extended National Accounts, identifying six distinct spheres of unpaid product. Section 3 deals with the major context variables in the study, concluding that the weighted samples of days for each decade are close to CPS population estimates. Section 4 works systematically through time use evidence on each of the six spheres of unpaid economic activity, considering in particular the plausibility of the trends of change, for people in various age, gender, employment and family categories.

Amongst the findings in the concluding section are:

- Limitations in the sample coverage and differences in instrument design mean that the most detailed comparisons of non-money national product from household and similar production will be possible only for 1975 and 2003, but some useful results will be derived from each of the survey periods.

- We strongly recommend a split-sample experiment to evaluate the effects of the different instruments used in the heritage and the BLS 2003 sample; we are particularly concerned to understand the very high levels of childcare in the latter.

It will be desirable to make arrangements for continued maintenance and improvement of the AHTUS, and in particular, for adding subsequent BLS materials to the study.

NON-TECHNICAL SUMMARY

This paper represents the first round of testing of a data set produced for the Glaser Progress Foundation to look at changes in total work performed in the United States. Total work includes both the work for which people are paid (and for which a wide range of national statistics are available) as well as the unpaid housework and care work which individuals and families undertake as part of the process of daily living. This analysis is limited to the working age population (people aged 19-64) as the first of the five studies included in the American Heritage Time Use Study (AHTUS) created in this project only collected information from people in this age range. The paper mainly highlights areas for future research.

1. The project and its outputs

This report examines the utility of the American Historical Time Use Study (AHTUS) datasets for analysing unpaid work or non-market production.

The central task for the project has been the production of a set of harmonised historical comparative cross-sectional micro-data files for the years 1965, 1975, 1985, 1992-4, together with the transformation of the 2003 ATUS to match these, producing a micro-data set consisting of 36,000 diary days. We have produced in total 45 common classificatory or context variables which span the almost 40-year period covered by the surveys, and a 2 digit (90-category) classification of time-use activities linking the ATUS to the heritage files. We have given particular attention to the preservation and deployment of the original sequential or episodic form of the diary data, for two reasons: (1) because of the intrinsic interest and general usefulness of this material, and (2) because these materials are a requisite for analysis of secondary or simultaneous activities, which are of particular importance for the understanding of the domestic production of childcare and other services, and for counts of numbers of consumption episodes (which are an important component of "output" measures of non-market production, as discussed in the following section).

Among the most important developments in the production of the harmonised heritage files has been the reconstruction of the 1975-76 US national study. Four waves of interviewing were carried out in 1975 (and a further four in 1980 which we have not as yet worked on). Diaries were collected from both respondents and their co-resident spouses. The Michigan group's original proposal for the analysis of this dataset was to link successively the responses from the same individuals to produce appropriately weighted sums of (three of the four) diaries to produce "synthetic weeks". But in fact most subsequent users of the data set have focussed just on wave 1 of the 1975 samples. As described in our previous report, we have devised methods (deploying standard panel response attrition correction methods) to use all of the 1975 waves, raising the usable size of this data set from 1500 respondents and a further 800 spouse respondents (for whom unfortunately no secondary data

was collected, which limits the usefulness of this data for current purposes) to around of 4500 respondent-days (or 7000 respondent- plus spouse-days).

We are, for the moment, less fortunate in the use of the 1985 data. The original activity sequence data (ie working event-by-event through the day) was not available for this (the files appear to have become corrupted). Our colleagues in Maryland have succeeded in reconstructing the majority of the sequence data only for the mail-back sub-sample of the study, and some smaller problems have been corrected since the writing of this report.

Further work remains for the later 1990s data. Though they are not included in the version of the AHTUS data file evaluated in this report, we have included the University of Maryland 1995 and 1998-2001 surveys in our harmonisation exercise, and harmonised data from these studies can be made available for analysis.

We will seek new funding for a “split sample” experiment comparing the Bureau of Labour Statistics CATI procedure with that used by the University of Maryland-based time use team in the 1990s. This will allow us to decompose changes in time use from the late 1990s to 2003, taking account of instrument effects. (The part of the CPS wave 8 sample unused in the ATUS provides one possible opportunity for this.)

Appended to this report is a Codebook providing detailed descriptions of the classificatory and contextual variables, and of the construction of historical comparative time use classification. Extensive documentation, including the original datasets, and complete versions of the SPSS syntax used in the derivation of the AHTUS files from these, will be made available on-line; a description of the file-structure of this documentation is also appended to the report.

2. Accounts of non-market production

There is a long history of attempts to extend national accounts to include non market production. The recent National Academy of Sciences report (Abraham and Mackie 2005) recommends the use of time-use data for this purpose. The main intention of what follows here is the preliminary testing of the suitability of the AHTUS materials.

There are for our present purposes two main approaches to valuing non-market production[1]; input and output methods.

- Input methods concentrate on the value of **labour time inputs**. These may be measured as the net wage the person would expect to earn if their time were used in the paid labour market (for instance in measuring the opportunity costs of paid vs unpaid work), or as the wage which would have to be paid to purchase equivalent work (directly paying a babysitter or part-time domestic help).

- Output methods measure the value of non-market production by **subtracting the cost of purchased inputs from an imputed value for the total of private non-market consumption events**. (Consider, for example, that the cost of a restaurant meal includes not only labour time inputs; of cooks, waiters, managers, but also the costs of the commodity and service inputs to the meal such as uncooked food, rent and overheads for premises, insurance, etc. Similarly, the addition to the national product attributable to meals taken at home, might be calculated as the value of an equivalent meal eaten at a restaurant, minus the cost of purchased raw materials, and a proportion of the overall cost of private housing and maintenance).

The two approaches must as a matter of principle, and according to the normal national accounts definitions, produce identically the same answer. The input approach measures labour and commodity inputs further back along the chain of

[1] There are in fact *three* distinct methods for valuing household production: (1) valuing unpaid labour inputs from the opportunity cost of the domestic producer's time (ie the "shadow wage"); (2) valuing labour inputs from the market wage of specialist paid workers providing equivalent services—or alternatively from the wage of a general purpose housekeeper; and (3) by valuing household output by comparison with the market prices of equivalent commodities. Hawrylyshyn (1976) reviews a range of "labour input" approaches. Schettkat (1985) while using both opportunity cost and market alternative methods in his study, states that "without doubt, the best way to account for household production would be to measure the output itself directly." (p310). Fitzgerald and Wicks (1990) respond directly to this assertion in their output study. Goldschmidt-Clermont (1993) similarly argues strongly against the input labour value approach. However the time use data requirements, for both the "shadow wage" and the "market wage" approaches are identical, and these requirements are the focus of this report,.

provision. The output method is, in terms of its data requirements, a precise complement to the input method, being concerned with the measurement, not of unpaid labour inputs, but with their associated **unpurchased consumption events**; the value of the unpaid labour of cooking, must in principle be identical to the value of the non-market meal minus its marketed inputs. However, this method makes rather more complex demands on time use surveys (and on the skills of the time-use analyst), both in identifying consumption events and in allocating activities appropriately to non-market production.

Constructing accounts of non-market production involves disentangling complex sets of inputs, of both commodities and labour. For instance, increased supermarket shopping means increased need for personal transport (Gershuny, 1989), so the maintenance and driving of vehicles becomes an input into household food production. To avoid double-counting, these various inputs may be schematised in a number of ways (UN, 2000; Holloway et al, 2002; Gershuny, 1989; 2000; Gronau and Hamermesh, 2003). For the purpose of assessing the Time Use surveys in this report we have adopted the following list of “final service functions” to represent the various spheres or branches of non-market production:

- Provision of shelter/housing
- Provision of clothing
- Provision of nutrition
- Provision of child care
- Provision of adult care (often associated with voluntary work in the community)
- Transport and shopping services

The focus of this report will be on the potential usefulness of the AHTUS data for identification of both input and output variables. In what follows we examine the evidence from the newly harmonised time-use studies on both domestic or unpaid production activities, and also of the extent of consumption associated with these. Our discussions will concern the plausibility of the historical sequence of estimates of means of unpaid work times and counts of consumption events. We have no serious

discussion of confidence intervals (though we provide simple standard errors, calculated using our sample weights, for each mean estimate in the appended tables).

3. Characteristics of the surveys

The datasets harmonized were:

- The 1965-66 Time Use Study ‘How Americans Used Time in 1965’ designed as part of an international project, the Szalai Multinational Time Use Study. The survey has two parts, a sample from Jackson, Michigan and a national sample;
- The 1975-76 study by ICPSR ‘Time Use in Social and Economic Accounts 1975-76’, a panel study designed to produce National Accounts, among other objectives;
- The ICPSR 1985 study ‘American’s Use of Time 1985’. Among other objectives this study tested the effects of different data collection methodologies
- The 1992-94 EPA studies ‘NHAPS Time Diary Study’ designed to produce data on exposure to environmental pollutants.
- The 2003 American Time Use Survey, carried out as a module of the 2002-2003 Current Population Survey.

The 1965-66 surveys, both the national and Jackson studies, (“Survey 1”) sampled only respondents aged 18 to 65 (the dataset includes only respondents aged at least 19), living in urban households with at least one member of the household in work. Only one member of the household was sampled.

The 1975-76 survey (Survey 2) was designed as a nationally representative sample of households and sampled both respondents, and, where respondents were married, spouses. Four waves of the survey were carried out in order to represent all seasons of the year and all days of the week. Only main respondents were included in the harmonized dataset, in order to facilitate weighting, however a supplementary

dataset containing both the main respondents and the spouses also is submitted. Attrition between the first and second waves of the dataset was in the order of 25%, attrition between the 2nd and 3rd waves about 8%, while a further 1% of respondents were lost between the 3rd and 4th waves. No information about tracking respondents is given in the main codebook for this survey, and it seems likely that respondents who moved house were lost from the survey.

The 1985 survey (Survey 3) was designed as a nationally representative sample of private households, and also collected data through three different methodologies. However only the mail-back element of the survey is used as the episode data survive only for this, the largest, of the sample groups. We are grateful to Professor John Robinson and Dr. Timothy Triplett for making available to us the episode dataset which was finally used. This survey sampled all members of the household aged over 12. Child diaries were excluded from the harmonized dataset submitted. We identified the child diaries from codes assigned only to those diaries and the absence of personal-level background data.

The 1992-94 dataset (Survey 4) was designed as a nationally representative survey of households and sampled one person per household and also included some child diaries. Child diaries were identified in the dataset and were excluded.

The ATUS 2003 dataset was collected from some respondents from the final wave of the Current Population Survey and yields a large nationally representative sample. However it differed in some significant ways from the previous datasets, in particular, secondary activities were only included in the datasets where they involved childcare. Some of the demographic variables in the 2003 dataset differed in important ways from those in the AHTUS datasets (see below).

3.1. Weighting

Weights have been constructed which exclude poor quality diaries and then adjusted the data by age and sex, plus adjusting for attrition in the 1975-76 survey. They also ensure an appropriate distribution of days-of-the-week for each sex and 5-year age group in each of the component surveys. As noted in our previous report, the

AHTUS survey variable distribution did not differ very markedly from population statistics, the most important difference being that larger proportions of the AHTUS respondents were well educated than found in the population. Harmonisation of the 2003 data has involved modification of some variables in the previously submitted datasets (see Appendix Table A2.1 for an evaluation of the quality of individual variables).

More detail on the datasets and on the variables used to test the diary data is given in the tables below.

3.2. The diary samples

Table 3.1 below shows the frequencies by survey for both weighted and unweighted data. Loss of cases in the weighted data is primarily due to poor quality diaries.

Table 3.1: Sample size by survey – weighted and unweighted data (aged 18 and over)

	Weighted data*		Unweighted data	
Survey	Frequency	Percent **	Frequency	Percent **
1965-66 USA Szalai Jackson sample	760	2.1	759	2.0
1965-66 USA Szalai national sample	1227	3.5	1262	3.3
1975-76 longitudinal survey	4403	12.6	4584	12.2
1985 survey	2554	7.2	2636	8.1
1992-94 NHAPS survey	6912	20.6	7514	19.8
ATUS 2003	17649	54.0	19663	54.6
Total	33506	100	36418	100.0

* frequencies rounded to the nearest integer; ** percent of whole sample

The diary data is tested using four demographic variables which are known to be relevant to household production; age, sex, employment and co-residence of children.

3.3. Gender and age

The unweighted data for gender shows disparities of 2% to 3% between the surveys and population statistics. The weighted data (see codebook for weighting procedures) is close to population statistics for the relevant age group (approx. 48% men and 52% women, therefore disparities of slightly over 1%).

Table 3.2: Gender by survey (weighted data)

Survey	Jackson 1965-66	National 1965-66	1975-76	1985	1992-94	2003	All
Men	49.7	45.9	45.6	46.2	44.5	47.6	46.6
Women	50.3	54.1	54.4	53.8	55.5	52.4	53.4
N	760	1227	4371	2554	6913	17649	33474

The unweighted data undersampled younger people. Tables 3.3a shows the distribution of the weighted data and Table 3.3b shows that the disparities in the nationally representative surveys (1975-2003) are now minimal.

Table 3.3a: Age by survey (weighted data)

Age	Jackson 1965-66	National 1965-66	1975-76	1985	1992-94	2003	All
18 to 24	17.3	16.6	19.4	15.8	12.4	12.5	13.9
25 to 34	19.8	21.8	21.4	23.7	21.3	18.6	20.1
35 to 44	23.0	24.0	13.2	18.6	21.9	20.9	20.1
45 to 54	22.6	21.6	15.1	13.3	16.4	19.3	17.9
55 to 64	15.6	14.7	13.5	13.0	11.1	13.2	12.9
65plus	1.6	1.3	17.3	15.7	16.9	15.5	15.2
N	761	1227	4371	2553	6911	17649	33472

Table 3.3b: Differences between AHTUS surveys and CPS statistics

Age	Jackson 1965	National 1965	1975	19885	1992-4	2003 CPS unweighted*
18 to 24	2.9	2.2	1.8	0	0	0.1
25 to 34	1.9	3.9	0.5	0	0	0.2
35 to 44	2.8	3.8	-2.5	0	0	0.1
45 to 54	4	3	-1.7	0	0	0.1
55 to 64	1.8	0.9	-0.2	0	0	0.1
65plus	-13.5	-13.8	2.1	0	0	-0.6

*weighted by the CPS weight but not the Essex weight

3.4. Employment

The questions, definitions and filtering for economic activity and work hours differ over the surveys (see the economic activity and work hours reports in the previous project report). The most important difference was that the AHTUS surveys broadly defined “part-time” as below 22 hours, with full-time being over 21 hours. The ATUS 2003 survey defined “part-time” as less than 35 hours. However, the classifications were not derived from the work hour variables, which also varied over surveys. In 1965 work hours were for the last week of work, with a lower bound of 10 hours, in 1975 it was ‘usual hours of work’. The question and definitions used for this purpose is not known for 1985. In 1992-94 the classification was based on answers to the “hours of work last week” question, and the same was the case for the ATUS 2003 data collection.

The distribution of economic activity variables is shown below. It can be seen that proportions of part-time workers are higher in 2003, particularly amongst women. This is likely to be an artefact of the data collection methods. The 1960s rates of part-time work are particularly low among men, since men aged over 65, who are more likely to work part-time are excluded. Table 3.4b shows the average work hours of different economic activity statuses.

Table 3.4a: Economic activity by survey by gender (Col% - weighted data)

	Jackson 1960s	National 1960s	1970s	1980s	1990s	2003
Men						
employed full-time	96.3	94.3	73.5	66.8	67.2	67.7
employed part-time	1.1	1.8	3.7	7.1	8.0	9.0
not employed	2.7	3.9	22.8	26.2	24.8	23.3
	100.0	100.0	100.0	100.0	100.0	100.0
Women						
employed full-time	48.3	45.2	39.2	43.1	48.0	43.9
employed part-time	2.4	4.7	8.3	11.3	12.9	17.5
not employed	49.3	50.2	52.5	45.6	39.1	38.7
	100.0	100.0	100.0	100.0	100.0	100.0

Table 3.4b: Mean work hours by economic activity and gender												
	Jackson 1965-66		National 1965-66		1975-76		1985		1992-94		2003	
Men	Mean	se	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se
Full-time	48.2	0.5	46.2	0.4	45.6	0.2	45.1	0.3	44.0	0.3	46.9	0.1
Part-time	na		na		13.2	0.8	10.0	0.5	22.1*	0.9	21.8*	0.3
All	47.9	0.6	45.6	0.5	44.0	0.3	41.7	0.5	41.7	0.3	44.1	0.2
N	367		533		1511		846		2262		6049	
Women												
Full-time	41.7	0.6	40.2	0.4	39.2	0.2	40.2	0.4	39.4	0.3	43.1	0.1
Part-time	16.3	1.3	15.1	0.7	13.4	0.4	11.3	0.4	19.0	0.5	21.4	0.2
All	40.6	0.7	37.9	0.6	34.6	0.4	34.2	0.5	35.1	0.3	37.4	0.2
N	190		327		1092		737		2293		5401	

* respondents were asked for their hours of work in the previous week.

It can be seen that the standard errors for part-time work tend to be larger than for fulltime work, reflecting wider variation in working hours. Analysts may wish to derive a part-time full-time classification from the work hours variable, although this will involve other (smaller) inconsistencies, due to differences in the collection of the work hours variables.

Table 3.4c below shows a comparison of the variable identifying non-employed respondents between the Time Use Surveys and the Current Population Survey for the relevant years. It can be seen that the statistics are of a similar order of magnitude, although the TUS respondents are slightly more likely to be employed. Similar trends can be seen in both surveys, employment decreases slightly for men over time, but increases again in the 2003 survey, while employment increases steadily for women.

Table 3.4c: Employment by gender by decade by survey (weighted)											
Time Use Surveys								Current Population Survey			
	Jackson 1960s	National 1960s	1970s	1980s	1990s	2003		1975*	1985*	1995**	2003**
Men											
Employed	97.3	96.1	77.2	73.8	75.2	76.7		71.3	70.6	72.0	74.7
Not employed	2.7	3.9	22.8	26.2	24.8	23.3		28.7	29.4	28.0	25.3
Women											
Employed	50.8	49.8	47.5	54.4	60.9	61.3		42.4	51.1	56.4	59.1
Not employed	49.2	50.2	52.5	45.6	39.1	38.7		57.6	48.9	43.6	40.9

* unweighted, ** population weight

3.5. Co-resident children

Table 3.5 below shows the distribution of children in households by age. Statistics from the Current Population Survey and the Census for households without children are also shown. The statistics are not strictly comparable, however, both sets show a decline in households with children. It is clear that the 1992-94 TUS under-samples households with children. The 1960s surveys, having a restricted age range, over-sample households with children.

Table 3.5: Households with and without children by survey (weighted) compared with census/cps statistics

Survey	Jackson 1965-66	National 1965-66	1975-76	1985	1992-94	2003
No children	40.7	41.5	55.2	64.5	76.2	61.2
Aged under 5	27.5	26.2	16.5	10.7	7.6	15.6
Aged 5 to 17	31.8	32.4	28.3	24.8	16.1	23.3
Census and CPS		CPS 1965*	1975	CPS 1985*	Cps 1993	Census 2000
No children		50.7	no data	60.2	62.6	64

*unweighted and covers own children, not step, adopted or grandchildren
Sources: 1965-1985 CPS extracts held at ISER, 1992-2000 US Census Bureau

4. Time use by the final service functions

Analyses of the time use variables by these demographic variables are described below. Results are presented graphically in the main text and detailed tables can be found in Appendix 1.

4.1. Housing/shelter

Table 1 shows the two digit codes for housing maintenance, covering all surveys. Fitzgerald and Wicks (1990) supply input and output costs for these housing maintenance tasks and it is important to note that the prices differ between tasks. However, Fitzgerald and Wicks report that output costs are based on time, i.e. cleaning firms charge by the day not the task. Firstly some investigation of total housing maintenance time is reported, then some analysis of individual tasks.

Table 4.1: Two digit codes for housework and housing maintenance

House maintenance and cleaning	
Codes by survey All surveys 2 digit codes	
22	Cleaning
24	Home repairs, maintain vehicle
25	Other domestic work
67	Gardening
Household management: purchases	See shopping section

Four variables were seen as crucial to analysing house maintenance: gender, employment status, age and presence/age of children. Clearly, both gender and age are correlated with employment status. However there have been changes in the likelihood of women working over the 40 years covered and additionally, retirement age has changed during that period, while more young people spend longer at college/university. This gives a natural experimental setting for assessing the time use results from the different cohorts. Since the 1960s surveys were restricted to those aged between 19 and 66, two sets of analyses are presented, one using the restricted age range for all surveys and one covering 1975 to 2003, using respondents aged over 17, with an upper bound in the 90s.

First of all some descriptive statistics on age and gender are presented. These serve to contextualise the later analyses.

4.1.1. Housework and housing maintenance time by age and sex

Figures 4.1a and 4.1b show changes in total housework time by survey, broken down by age group and sex. Tables of means and standard errors are found in the Appendix.

The average amount of housework carried out by men increases over the surveys (by about 20 minutes per day) while women decrease their housework time by a similar amount. However, the 1960 surveys sampled only households with at least one economically active member. There is a surprisingly high level of housework among 19 to 24 year-old men in 1985; Appendix Tables show that the standard error for this statistic is relatively large, raising the possibility of major data errors in our version of this data (the episode-level version of the survey data has become corrupted in the past and has been reconstructed for the AHTUS).

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Figures 4.2a and 4.2b show average housework times for post-retirement age respondents from 1975 onwards. Older respondents do more housework than the mean for the whole sample. This is particularly the case for men and probably reflects retirement.

The increase in the mean for men's housework is not so pronounced between 1975 and 2003, being less than 10 minutes. In particular, housework drops slightly in the 2003 survey for men. It seems likely that this reflects a change in labour market participation. While participation fell by about 8% for working age men aged 55 to 64 between 1975 and 1985 and slightly further between 1985 and 1995, it rose again between 1993 and 2003 by approximately 2%. This change in participation in this age-group is also found in the demographic statistics in the AHTUS surveys. Proper comparisons cannot be made with the 1960s surveys because the sample design required at least one household member to be employed, however, the participation rate in 1965 for men aged 55 to 64 were approximately 85%, 10% higher than that for 1975.

Apart from the high levels of household work for young men in 1985 these findings are plausible and agree with findings from other time use datasets (Gershuny, 2000).

4.1.2. Housework, housing maintenance by employment status

Employment status clearly affects the time available for housing maintenance and may also enable or constrain purchasing these services. Results for employment status are presented by gender and survey. Because of the differences between the surveys in how the economic activity and work hours data, from which the part-time/full-time classification was derived, employment is categorised in two categories, employed and not employed. Figure 4.3 shows the average minutes spent in housing maintenance by survey, gender and employment.

Comparing the overall means for both men and women with the non-employed respondents shows that these respondents spend most time on housing maintenance. However, there is some variation between surveys. The means for men and women are converging over time. Employed men have increased their housing maintenance work, though it remains fairly constant for employed women. Nonemployed men have substantially increased their housing maintenance work over time, by about 40 minutes. With the exception of the 1992-94 survey non-employed women have decreased average housework time, by about 20 minutes per day. Possibly the 1992-94 statistic for women reflects sampling fluctuation, or data error. Similar effects, not reported here, are found when the 65 plus age group is included for the 1975-2003 series

4.1.3. Housing maintenance by child co-residence in the household

Figures 4.4a and 4.4b below show the average time spent in housework by whether or not there is a child resident in the household. The overall averages (see Appendix Table 3a) show differences of only 4 to 6 minutes in men's housework by child co-residence, though there is some fluctuation over the surveys.

Women in households containing children do more housework, although by 2003 the differences are only in the order of 3 to 4 minutes (see Appendix Table 3a). The effects of child co-residence disappears when older respondents are included (see Appendix Table 3b). Since older respondents do more housing maintenance in any case, and since they are less likely to have co-resident children, the effects of dependent children are confounded with age.

4.1.4. Components of total household maintenance

As noted earlier, some household maintenance activities have higher input and output prices. For instance the prices of car and house maintenance are about three times those of house cleaning (Fitzgerald and Wicks, 1990). The 3-digit codes held on the 1970s, 1980s and 2003 data, show that code 25 ‘other domestic work’ includes clerical tasks which should probably be valued at the price of hiring a secretary through an agency.

Figures 4.5a and 4.5b below show the distribution of time spent on specific household tasks over the surveys. It is clear that women spend more time house cleaning although this decreases over surveys. There seems to be a small increase (of about 7 minutes) for men cleaning, although this falls off again in 2003. As noted earlier, there are anomalies with the 1980 survey, while the 1990 survey concentrates on polluting activities or environments (such as use of cleaning fluids) and these results may be partly artefactual. Time spent in outdoor gardening and tidying has increased in the final survey, particularly for men. Similar findings are made when the 65 plus age group is included. Since the category gardening/outdoor tidying contains some basic cleaning tasks, although done out of doors, it is possible that there is some inconsistency in the coding over surveys between these two tasks, which should be combined in that case.

4.1.5. Summary of housework

- Women’s housework decreases over time, while men’s increases (though less dramatically).
- Older respondents do more housing maintenance.
- Men did more housing maintenance than would be expected.
- There are possible instrument effects in the 1992-94 survey.
- The data seems adequate for deriving both output and input prices.

4.2. Clothing and laundry

Two codes for clothing maintenance are held on the harmonised dataset, however, one, purchasing laundry and clothes repair services, will be dealt with under the shopping sector. This category covers two main types of output (see concordance file), which seem to be similar in price; laundry and repairs (Fitzgerald and Wicks, 1990). Also included within this category are activities such as knitting and sewing.

Table 4.2: Clothing, Laundry	
All surveys 2 digit codes **23**	Laundry, ironing, clothing repair

Table 4.3 below shows the number of episodes of clothing maintenance by survey.

Table 4.3: Episodes of clothing maintenance by survey					
	1960s	1970s	1980s	1990s	2003
number of episodes	1223	1400	980	1061	4828
Sample n of respondents	1987	4402	2554	6913	17649
ratio episodes/sample number	0.62	0.32	0.38	0.15	0.27

It can be seen that broadly episodes of clothing maintenance decrease over surveys. This seems plausible and probably reflects the decreased relative cost of basic clothing and the durability of such items as socks, which were once made of wool and are now made from synthetic fabrics. It may also signal decreased home production of garments through knitting and sewing. Table 4.4 below shows the lengths of episodes of clothing maintenance, broadly categorised. Duration may be used to calibrate the output prices, being a broad indicator of the size of the output (see Fitzgerald and Wicks, 1990, Tables 1 and 2). However, this can only be an approximation.

Table 4.4: Duration of episodes of clothing maintenance/production (column %)					
length of episodes	1960s	1970s	1980s	1990s	2003
1 to 14 minutes	21	29	28	19	24
15 to 29 minutes	28	24	31	18	22
30 to 49 minutes	26	23	25	17	19
50 to 300 plus minutes	25	24	16	46	34

4.2.1. Gender and age

Figures 4.6a and 4.6b show the time spent on clothing maintenance by gender, age and survey. Consistently with the episode data, clothing maintenance work decreases (by about 20 minutes per day) over time for women, who do most of it. However, there is a small rise in 2003 (about 5 minutes) compared with the previous two decades, although not with the 1970s. This trend is not easily explicable in terms of changes in household technology and women's employment. It has already been reported that the 1992-94 dataset under-samples households with co-resident children, and anomalies in the 1985 survey have previously been noted. Possibly the 1980s and 1990s data underestimates the amount of clothing maintenance. Although there is a small increase between the 1970s and 2003 in clothing maintenance among men, the time spent by men per day is so small (between 0 and 7 minutes), that this increase may be judged trivial.

Figure 4.7 shows older women doing more clothes maintenance than younger women, with no difference between older and younger men. This seems plausible, although it is not clear whether maintenance or production (e.g. knitting/embroidery) is at work. The figure also shows an increase in 2003, which is greater than that found among younger women.

4.2.2. Clothes maintenance by employment

Non-employed women do more clothes maintenance than employed women, while only small differences are seen among men. This is plausible since many non-employed women will have young children. Trends over surveys by co-resident children are shown next.

4.2.3. Clothing maintenance by co-resident children

Figure 4.8 shows that women with no co-resident children do less clothes maintenance than women with co-resident children, although the two groups of women are converging over time, due mainly to decreased clothes maintenance in the later period for women in households with children.

4.2.4. Summary of clothes cleaning and maintenance

- Clothing maintenance labour declines over time and is consistent with what is know about technological and labour market changes.
- There may be underestimation of clothing maintenance in the 1985 and 1992-94 datasets.
- The data seem adequate and appropriate for input-based estimates. But consumption of housing and clothing is constant and cannot be directly identified in Time Use Surveys.

4.3 Nutrition

Providing nutrition involves shopping and travel as well as meal preparation. However, these issues will be dealt with under the shopping and travel sections. The codes providing nutrition and identifying consumption are shown below.

Table 4.5: Two digit codes for nutrition	
Codes all surveys	
Consumption	
8	Meals at work
9	Other meals & snacks
Labour meals	
20	Food preparation, cooking
21	Set table, wash/put away dishes

4.3.1. Consumption of meals

From a satellite accounting point of view the important issue is identifying whether or not a meal or snack was home-produced. The location of the meal is a first step in this. However, there are some ambiguities in this, in that meals consumed at home may have been bought in a supermarket. Time spent prior to the meal in cooking may identity home production, though some meals may have been made months previously and kept in a freezer. Meals consumed at work may have been made at home (e.g. sandwiches). The costs of meals vary according to their quality and quantity. Some estimate of the cost of a meal may be made by the duration of the meal. First of all, some information on the characteristics of the data is outlined. Secondary activity was not recorded in 1992-94 and only secondary activity as childcare was recorded in 2003. Therefore meals which were perceived as secondary activities will be lost from these datasets.

Meals at work were not recorded separately in 1992-94. Eating and drinking as part of work was recorded in 2003, but not meals at work. These meals must be identified through location. Tables 4.6 and 4.7 below show distributions of numbers of meals, at work and not at work, by survey and primary or secondary activity report.

Table 4.6: Daily meals at work by survey and primary and secondary activity report

Meals at work (primary)	**1960s**	**1970s**	**1980s**	**1990s**	**2003**
0	68.7	80.1	80.8	100.0	99.2
1	28.9	17.8	18.5		0.7
2	2.2	1.9	0.7		0.1
3	0.1	0.1			0.0
4	0.1	0.1			
Meals at work (secondary)					
0	99.3	98.0	99.6	100.0	100.0
1	0.6	1.7	0.3		
2	0.1	0.3	0.0		
3		0.0	0.0		
Number	1987	4403	2554	7514	17649

Table 4.7: Daily meals not at work by survey and primary or secondary activity report					
	1960s	**1970s**	**1980s**	**1990s**	**2003**
Meals not at work (primary)					
0	2.2	3.0	3.1	8.9	10.4
1	11.9	16.9	16.4	29.6	33.3
2	36.5	31.6	36.3	36.1	34.3
3	34.9	31.2	31.6	21.3	18.0
4	10.3	11.7	9.8	3.3	3.3
5	3.1	3.8	2.0	0.6	0.6
6	0.6	1.3	0.6	0.1	0.1
7	0.5	0.2	0.1	0.01	0.1
8	0.0	0.1		0.03	
9		0.03	0.05		
10		0.01			
Meals not at work (secondary)					
0	86.8	75.1	67.7	100	100
1	11.1	16.5	20.5		
2	1.6	5.4	7.1		
3	0.3	1.8	2.4		
4	0.2	0.6	1.0		
5		0.2	0.6		
6		0.2	0.4		
7		0.0	0.2		
8		0.0	0.0		
9		0.0	0.1		
10 plus		0.2	0.2		
	1987	4403	2553	7514	17649

Quite a high percentage of meals are recorded as secondary activities, for meals ‘not at work’ it was approximately 13% in the 1960s, 25% in the 1970s and 32% in the 1980s. Secondary activity is important in making a full count of meals. Table 4.8 shows the total number of meals and the ratio of daily meals to sample size. The steep drop in number of meals from the 1990s surveys onwards may be due to the non recording of meals as a secondary activity. It may be possible to retrieve some of these meals by looking at the location of social/leisure activities, where the meal may have counted as secondary to the social activity.

Table 4.8 Numbers of meals by survey					
Number of meals	**1960s**	**1970s**	**1980s**	**1990s**	**2003**
0	0.9	1.0	1.4	7.3	10.2
1	6.1	7.9	7.2	30.6	33.2
2	21.9	24.8	23.7	36.7	34.3
3	43.2	34.2	35.9	21.2	18.2
4	18.8	18.0	19.7	3.4	3.3
5 to 9	8.9	13.7	11.9	0.7	0.8
10 plus	0.1	0.5	0.2		
number of meals	6038	13796	7961	12801	30665
sample n	1987	4402	2554	6913	17649
ratio n of meals/sample	3.04	3.13	3.12	1.85	1.74

Table 4.9 below shows the location of meals/snacks by survey. Main activity only is reported since two surveys do not code secondary activity. Including secondary activity meals reduces by 1-2% meals eaten at home and in the workplace and increases meals eaten in another's home or while travelling. But the differences are minor.

Table 4.9: Location of meals (main activity) by survey.					
Location of meals	1960s	1970s	1980s	1990s	2003
Location unknown	0.4	0.4	0.1	0.0	0.0
Own home	78.3	73.2	75.5	75.1	76.8
Other home	0.1	5.2	2.5	3.1	4.5
Workplace	11.9	8.3	7.6	0.1	14.1
School	0.0	0.0	0.5	0.5	0.5
Services/shops	0.0	0.0	0.7	14.7	0.7
Restaurant/cafe/bar	8.3	10.1	11.5	0	0.1
Place of worship	0	0	0.1	0.1	0.3
Travelling	0.0	0.1	0.4	0.3	0.5
Other	0.9	2.6	1.2	6.1	2.5

The majority of meals occur in the home. A further increasing percentage occur in restaurants/cafes/pubs, though there appears to be some data error in the 1990s dataset, possibly with meals in restaurants coded as services/shops. Additionally, no meals are coded as occurring in the workplace. For the 2003 data, meals in the workplace can be identified through the location code.

4.3.2. Length of meals

Table 4.10 below shows length of meals/snacks by survey (these durations are potentially important for valuing home-produced meals). There seems to be considerable, though fluctuating, consistency over time.

Table 4.10: Duration of meal/snack episodes

	1960s	**1970s**	**1980s**	**1990s**	**2003**
1 to 9 minutes	4.8	6.8	4.5	4.4	3.9
10 to 19 minutes	28.4	25.3	24.9	20.1	23.9
20 to 29 minutes	17.0	14.4	15.0	11.8	15.2
30 to 39 minutes	31.9	29.5	31.0	30.0	33.1
40 plus minutes	17.9	24.0	24.6	33.5	23.8
	100	100	100	100	100

4.3.3. Cooking and clearing up

Figures 4.10 and 4.11 show the labour time used in cooking, preparing the table and clearing up by gender and age (see Appendix for detailed tables). For men there seems to be quite a clear gradient by age. However, as noted before, the 1980s statistics are not consistent with the trend for men, which is a small upward gradient. For women, time spent on meal preparation is decreasing over time. Similar effects are found for the oldest age group, shown in the following figures. However, older people spend more time cooking than the mean over all age-groups, a finding which is completely plausible.

As might be expected, the non-employed do most cooking, although the figure for non- employed men is still below that of employed women. Women with no children in the household do less cooking than those with co-resident children, although there is little difference for men. Finally, Figure 4.14 shows the two discrete tasks, cooking and clearing up by gender and survey. The results echo the results reported above. Interestingly, men do very little clearing up and rather more cooking.

4.3.4. Summary of nutrition

- The non-recording of secondary activities in the 1990s and 2003 dataset seems to have led to under-reporting of meals. It may be necessary to weight this data in order to get a more representative count of meals.
- The length of meals and location of meals can easily be derived and seems plausible, with the exception of the 1992-94 data. However, there will remain some uncertainty about the agency of production of some meals.
- Trends over time in labour inputs are plausible (with the exception of 1985, where the problem may lie with the demographic data), despite the non-recording of secondary activities.
- With the exception of 1985, the findings by employment and co-resident children are not implausible.

4.4. Childcare

Considered from the perspective of the carer, childcare accounts for labour time. However, there are issues in identifying and measuring childcare. Childcare may be carried out as part of multi-tasking, in which case it is necessary to identify secondary activities, when the primary activity has not been identified as childcare. Supervision of children may restrict an adult's activities and take up some attention, but can only be measured through co-presence. Co-presence data is not held on 1985 or 1992-94. It is not clear whether co-presence is recorded if a child is in another room of the dwelling. Table 4.11 shows childcare codes.

Table 4.11: Childcare codes.

Childcare	
All surveys 2 digit codes	
33	Care of infants
34	General care of older children
35	Medical care of children
36	Play with children
37	Supervise/help with homework
38	Read to, talk with child
39	Other child care
65	Physical activity/sport with child

Childcare involves both active care and supervision, or secondary childcare, for instance, talking to a child while doing housework. Secondary activity was not recorded in the 1992-94 dataset, but secondary childcare was recorded in the 2003 dataset and the childcare coding in the 2003 data is very detailed.

Figure 4.16 below shows active childcare by age and survey for men. It can be seen that the prime age for active childcare for men is between 25 and 44. The trends by time fluctuate substantially. The 1992-94 data under-sampled households with children, and problems have previously been identified with the 1985 data, where the demographic matching may be wrong. There is a sharp upward curve for childcare in 2003. Figure 4.17 below shows secondary childcare by age and survey for men and the increased childcare time in 2003 is even more evident. Although the heritage datasets under-sampled households with children, particularly in 1992-94, and the 2003 dataset slightly over-samples households with children, this does not seem adequate to account for these differences and it seems likely that this is an instrument effect. Since trends in secondary childcare by men are not detectable in a graph scaled to the 2003 data, a further figure shows trends in secondary childcare from the 1960s to the 1980s. Average childcare time increased very slightly during that time for men (by about 1 minute).

Figures 4.18 to 4.21 below show the same graphs for women, and it can be seen that more childcare is recorded again in 2003. Prior to 2003, childcare time had declined. While this might be associated with declining numbers of households containing children, Figure 4.21 shows that there is still a rise in childcare time in 2003 controlling for whether or not there is a child co-resident in the household.

Although not shown here, because the mean time on childcare is so low among older people, the same effect is found among older women and men.

Figure 4.20 shows childcare over time by employment and co-resident children. Apart from the rise in 2003, the figures are as expected, non-working women do most active childcare. Men and women with a child aged under 5 do most childcare.

4.4.1. Summary of childcare

- Childcare steeply increases in 2003. While this may partly reflect the composition of the samples, with the heritage survey, particularly 1992-94 under-sampling households with children and the 2003 slightly over-sampling these households, it also seems likely that there is a strong instrument effect.

4.5. Adult care and voluntary work

As with childcare, adult care may be carried out as a secondary activity. Without knowing the state of the cared for adult, it is not possible to know whether co-presence is an issue. Co-presence data is not held on 1985 or 1992-94.Adult care can also be carried out outside the home and location may make it possible to identify this.

Table 4.12:Adult care and voluntary activity

All Surveys 2 digit codes	
40	Adult care
41	General voluntary acts
42	Political and civic activity
43	Union and professional activities
44	Volunteer for child/family organization
45	Volunteer fraternal organization
46	Other formal volunteering

Relatively little adult care is carried out by men, with the mean varying from 1 to 15 minutes. However, the 2003 survey again reports more adult care.

There are clear differentials by age in the 2003 data, with older men and women carrying out more adult care. These differentials can also be found for women in the 1975-76 data. Figure 4.25 shows adult care by employment, gender and survey. For the 1975 and 2003 data, the results are as might be expected, with the non-employed doing more adult care.

The consumption of voluntary activity is not directly observed in Time Use Surveys and the main feature examined is labour input.

Figure 4.26 shows average time spent in voluntary work by men. The mean statistic changes little, rising by about 2 minutes over time. Considerable fluctuations are found among age groups, probably due to the relatively infrequent nature of the activity. The mean for women drops sharply in the 1992-94 surveys. Apart from this, little difference is observed between men and women (see Appendix 1) and statistics for voluntary work by employment and co-resident children are combined for the two sexes. Figures 4.28 and 4.29 show trends by survey and Appendix Tables give more detailed statistics. On average, not employed people do more voluntary work, although there is a drop in the 1990s data. Respondents with children aged between 5 and 17 also seem to do more voluntary work. However the statistics fluctuate considerably, although 2003 again seems to give a larger estimate.

4.5.1. Summary of adult care and voluntary work

- Adult care is much higher in 2003 and it seems likely that this is an instrument effect.
- Adult care may be most severely under-reported in the 1980s and 1990s.
- Generally, adult care may be a relatively infrequent activity, leading to fluctuating results over time.
- Voluntary work may be too infrequent an activity to evaluate, given the sample sizes of most of the surveys.

It may be appropriate to combine these two activities in the extended accounts.

4.6. Shopping and travel

Shopping is a labour input, providing intermediate inputs into unpaid work. The allocation of shopping time to outputs depends on identifying the type and purpose of the shopping. As can be seen from the tables below, the purposes of shopping are fairly well identified on all surveys.

Table 4.13:Travel, shopping and getting services

All surveys 2 digit codes	
26	Purchase routine goods
27	Purchase consumer durables
28	Purchase personal services
29	Purchase medical services
30	Purchase repair, laundry services
31	Use financial/government services
32	Purchase other services
90	Imputed travel
91	Travel related to personal care
92	Work travel
93	Travel to/from work
94	Travel related to education
95	Travel related to consumption
96	Travel related to child care
97	Travel for adult care, vol, worship
98	Other travel.

Figures 4.14 and 4.15 below show shopping time by age-group and survey for men and women. The means vary little over the surveys and little difference can be seen by age group. However the Appendix Tables suggest that younger people do slightly less shopping in the later surveys.

Figure 4.14 shows an increase (of about 10 minutes) for post-retirement age men, however little difference is seen for women. Figure 4.32 shows shopping time by employment. It is clear and plausible that non-employed women do most shopping. There is no consistent trend over time. Figure 4.29 shows average shopping time by child co-residence. No clear trend over time can be seen and no clear difference by child co-residence status.

Table 4.15 below shows that the largest category of shopping is routine shopping. Little difference is found by survey, although there may be data error in the 1992-94 survey, with shopping for consumer durables being very high, while routine shopping is low.

Table 4.14: Categories of shopping – Average minutes per day		
	Mean	Standard error
Routine shopping	20	0.27
Consumer durables	4	0.16
Personal services	2	0.07
Medical services	3	0.13
Repair and laundry services	1	0.07
Financial and government services	1	0.04
Other shopping	1	0.08

Table 4.15: Categories of shopping by survey – Average minutes per day							
Survey	Routine	Durables	Personal Services	Medical Services	Repair & Laundry	Financial/ Government	Other
1960s	14	2	2	1	3	1	13
1970s	21	1	2	2	1	1	1
1980s	23	1	1	2	1	2	2
1990s	7	18	1	3	1	1	1
2003	26	0	2	3	1	1	1
Mean	20	4	1	3	1	1	2

Travel is similar to shopping in facilitating final consumption, but has other roles, for instance commuting to work may be counted as household production (ONS, 2002). For accounting purposes the mode of travel (i.e. walking, cycling, public or private transport) is important as travel by public transport cannot be counted as part of household production, being already covered in the National Accounts. The mode of travel has not been recorded in 1965-66 or 1975-76. It may be necessary to weight the data using transport surveys which are available from the late 1960s onwards (National Personal Transportation Survey, FHWA). However, public or mass transportation is the mode for a relatively small percentage of journeys (see Table 4.16 below). The majority of recorded journeys were made by motor vehicle.

Table 4.16: Mode of travel by episode (Col%)			
Mode	1985	1992-94	2003
Car/truck/motorcycle	72.19	87.49	87.56
Public/mass transport	16.51	2.13	1.96
Walk (inc child carried)	0.00	9.82	7.34
Cycle	0.00	0.47	0.26
Other or unspecified mode	11.29	0.10	2.89
N of episodes	10399	25515	80085

The purpose of the journey is also relevant in deciding whether or not the journey counts towards household production. While some of the travel codes are clearly

related to household production, for instance, travel for childcare, others are more ambiguous. Travel for consumption covers shopping, which can be an intermediate input into household production. However, it also covers travelling to a restaurant. The episode data may help to produce more detailed travel purpose data, keeping in mind that the purposes of some journeys are multiple. Table 4.17 shows the numbers of episodes in each travel category by survey. The 1985 and 1992-94 surveys seem to report fewer travel episodes.

Table 4.17: Number of travel episodes by survey

Purpose of travel					
	1960s	1970s	1980s	1990s	2003
travel related to personal care	10.29	13.81	12.21	16.83	18.18
travel as part of paid work	na	na	na	0.63	3.09
travel to/from work + other work travel	28.05	19.96	22.02	24.54	16.72
travel related to education	1.78	2.30	1.61	2.66	1.73
travel related to consumption	29.82	25.84	30.77	25.82	31.73
travel related to child care	5.26	5.22	4.32	3.20	7.44
travel for adult care, voluntary activity, worship	5.32	11.95	7.82	4.78	3.88
other travel	19.48	20.92	21.24	21.54	17.23
N of travel episodes	8987	20923	10562	25622	81269
Sample n	1987	4402	2554	6913	17649
Ratio	4.5	4.8	4.1	3.7	4.6

Holloway et al (2002) suggest that household travel should be costed at the price of a taxi journey. Therefore it is important to identify the length of journeys. Table 4.18 shows that duration of journeys can be identified in the TUS surveys.

Table 4.18: Journey times

	1960s	1970s	1980s	1990s	2003
1 to 5 minutes	21.65	29.25	14.92	21.80	28.92
6 to 10 minutes	22.67	22.02	21.00	18.39	22.23
11 to 20 minutes	32.10	26.52	35.47	27.33	27.54
21 plus minutes	23.59	22.22	28.62	32.48	21.31
Number of journeys	8987	20923	10561	25622	81269

Figures 4.34 and 4.35 show average time spent travelling by age and gender (also see Appendix 1 for detailed tables). Mean travel time has not increased very much

for men, but has increased substantially for women, perhaps due to increased commuting to work. Older people travel less.

4.6.1. Summary of travel and shopping

- Plausible differences by gender are found with women spending more time shopping than men.
- Most shopping is routine shopping, which is likely to be an intermediate input to household production.
- There may be data error on the 1992-94 survey
- Most travel is privately provided, however, public or mass transport is not recorded in the 1960s or 1970s surveys and will have to be imputed.
- Journeys for child or adult care and for voluntary work are recorded. However journeys for shopping are categorised with journeys for personal consumption.
- There are ambiguities about the purposes of some journeys which cannot be easily resolved, given the data.

5. Conclusions

This report marks the completion of version 1.0 of the AHTUS dataset. We subsequently have made minor modifications of this first release in response to comments by reviewers and others.

We have established some reservations concerning the useability of some of the samples:

- 1965 has a limited sampled age-range

- For 1985 we have only been able to reconstruct the whole of the postal-return sample. Some of the figures and tabulations discussed above highlighted a problem in the matching of some background information with activity

sequence materials. After completion of this report, we isolated and corrected this problem.

- The early 1990s sample suffers from some missing classificatory data (marital status, income) and has no secondary activity data.

- The later 1990s data (not as yet included in the AHTUS dataset includes the missing classificatory data, but is close in historical time to the ATUS start date of 2003. We cannot for the moment tell if differences between estimates from these sources reflect historical *change*, or difference in the instruments, or both. This is issue requires further research (see recommendations below)

- The two digit classification does seem appropriate for the construction of both input- and output-based accounts, perhaps broken down into a maximum of five to seven categories of non-market product.

We present comparison files for each decade since 1960s, but for general purposes, we consider that for the moment, most confidence can be placed in the relatively long-term two-way comparison of the 1975 with the 2003 ATUS data.

Our proposed next steps include:

- further testing, including a split sample experiment to investigate the consequences of the different instruments used in the collection of the post-1985 heritage files collected by the University of Maryland, and by the BLS for the 2003 ATUS

- Adding further heritage datasets (particularly the 1995 and subsequent Maryland files after completion of the evaluation of the above mentioned testing for instrument effects).

- An evaluation (subject to BLS access rules) of the currently uncoded respondents' verbatim records of secondary activity held by the BLS, as an

input to a reconsideration of decision to collect records only of secondary childcare.

- Maintaining and updating the longitudinal series, adding annual ATUS results as these become available

- Ensuring that data access is widely diffused, perhaps directly downloadable from a number of sites (Colchester, New Haven, perhaps U Maryland and St Mary's Halifax)

- A regular controlled central release of future numbered versions of the AHTUS from the project team. The ISER group is content to continue this, temporarily, on an unfunded basis pending new funding arrangements.

References

Abraham KG and C Mackie (eds) (2005) *Beyond the Market*, Washington: National Academy

Fitzgerald, J. and Wicks, J. (1990) 'Measuring the Value of Household Output: A Comparison of Direct and Indirect Approaches' *Review of Income and Wealth,* 36(2): 129-141

Gershuny, J.I. (1989) 'Technical Change and the Work/Leisure Balance: A New System of Socio-economic Accounts' *Technology and Economic Progress* (ed) Aubrey Silberston, London: MacMillan

Gershuny, J. I. (2000) *Changing Times: Work and Leisure in Postindustrial Society* Oxford: Oxford University Press

Goldschmidt-Clermont, L. (1993a). "Monetary Valuation of Unpaid Work: Arguing for an Output Measurement." *Bulletin of Labour Statistics* 4: xi-xviii.

Goldschmidt-Clermont, L. (1993b). "Monetary Valuation of Non-Market Productive Time Methodological Considerations." *Review of Income and Wealth* 39(4): 419-434.

Gronau, R. and Hamermesh, D.S. (2003) *Time vs. Goods: The Value of Measuring Household Production Technologies* Working Paper 9650 National Bureau of Economic Research, Cambridge, MA

Hawrylyshyn, O. (1976) 'The Value of Household Services: A Survey of Empirical Estimates' *Review of Income and Wealth* 22(2): 101-31

Holloway, S., Short, S., Tamplin, S. (2002) *Household Satellite Account (Experimental Methodology)* 2000,London: ONS 2002 (http://www.statistics.gov.uk/hhsa/hhsa/downloads.html)

Schettkat, R. (1985). The Size of Household Production: Methodological Problems and Estimates for the Federal Republic of Germany in the Period 1964 to 1980. *Review of Income and Wealth,* 31, pp. 309-321

United Nations, (2000) 'Household Accounting: Experience in Concepts and Compilation' Vol 2 'Household Satellite Extensions'(Table 1) *Studies In Methods, Series F, No 75/Vol 2 Handbook of National Accounting*, New York, United Nations

Figures

Figure 4.1a :Men - Average minutes per day on total house maintenance by survey and age (19-64)

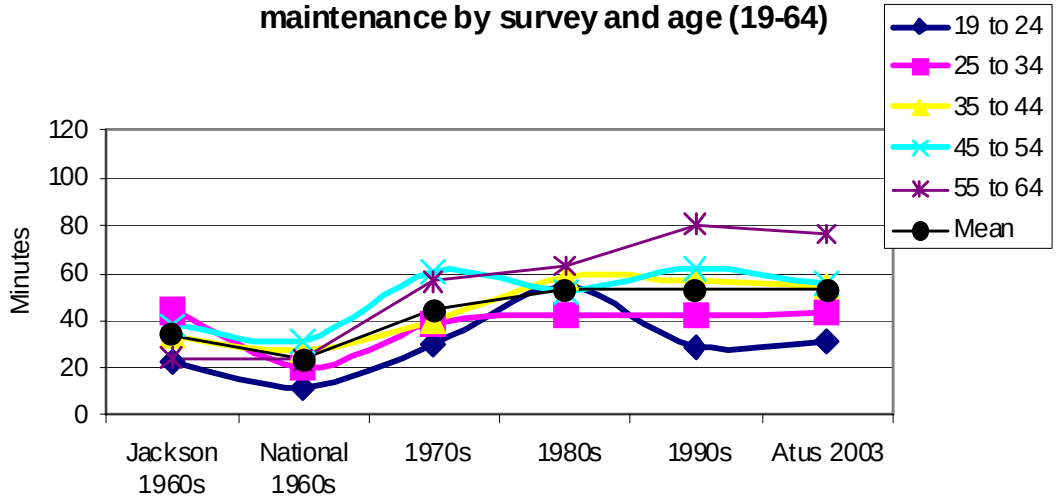

Figure 4.1b: Women - Average minutes per day on total house maintenance by age (19-64) and survey

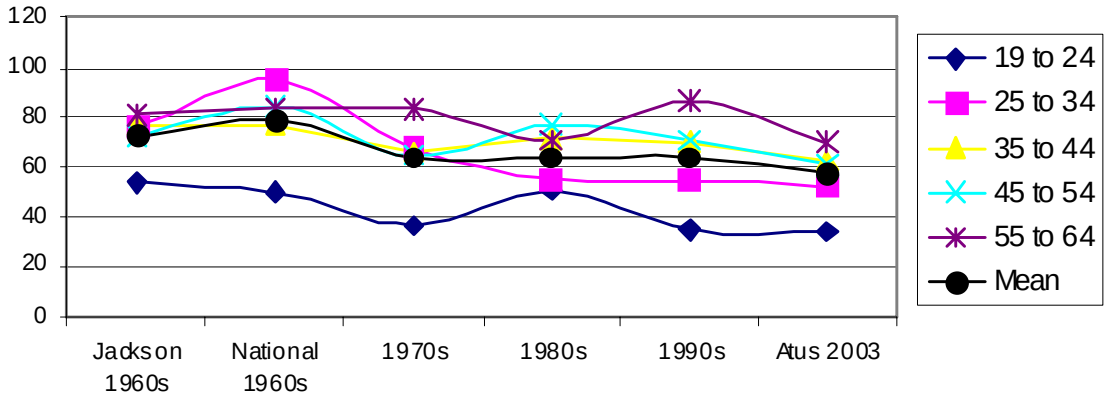

Figure 4.2: Average minutes on housing maintenance by gender and survey (aged over 65)

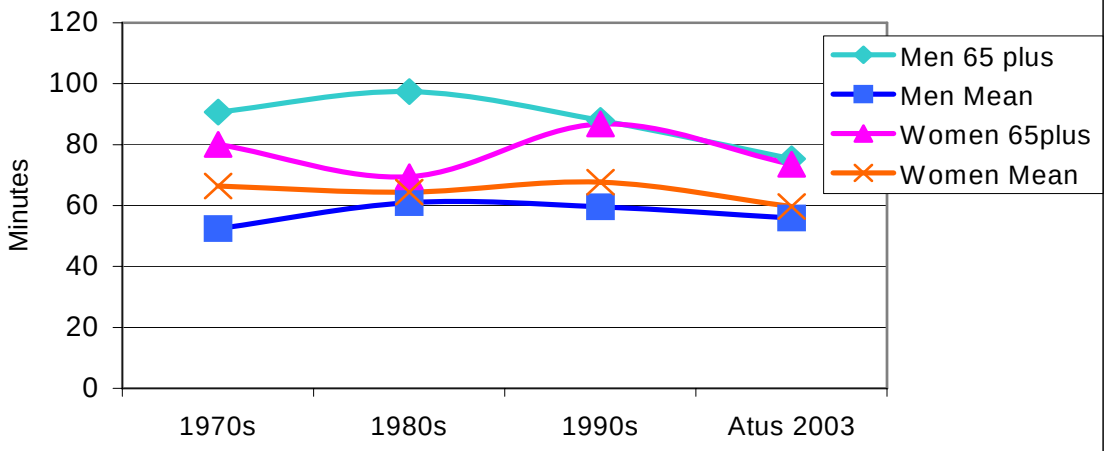

Figure 4.3 : Average minutes per day in housing maintenance by survey, employment and gender (aged 19-64)

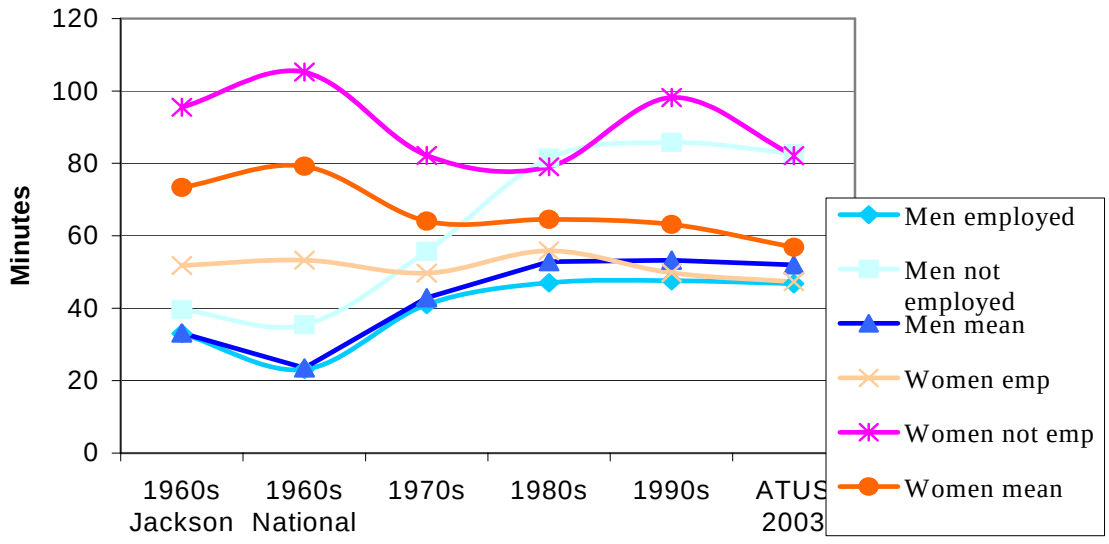

Figure 4.4a: Men - Total Housework by survey and child co-residence (aged 19-64)

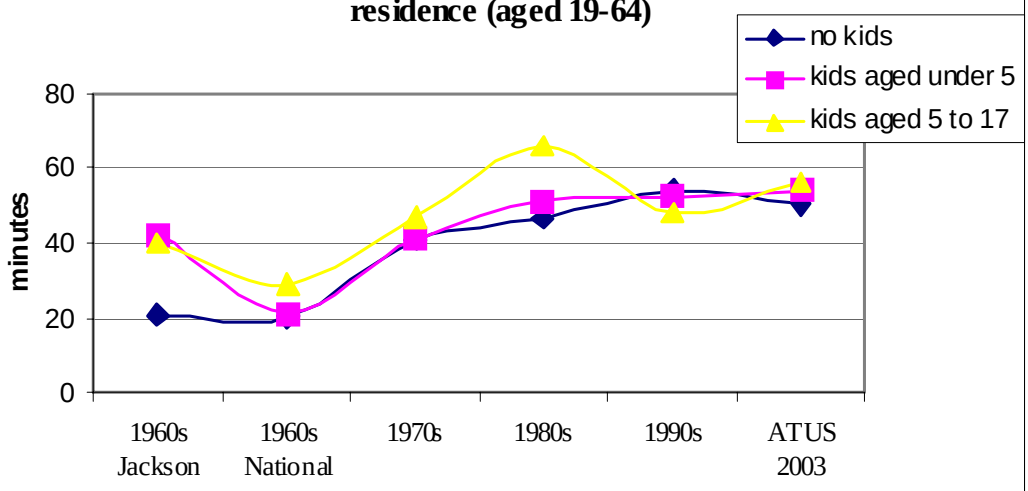

Figure 4.4b: Women - Total Housework by survey and child co-residence (aged 19-64)

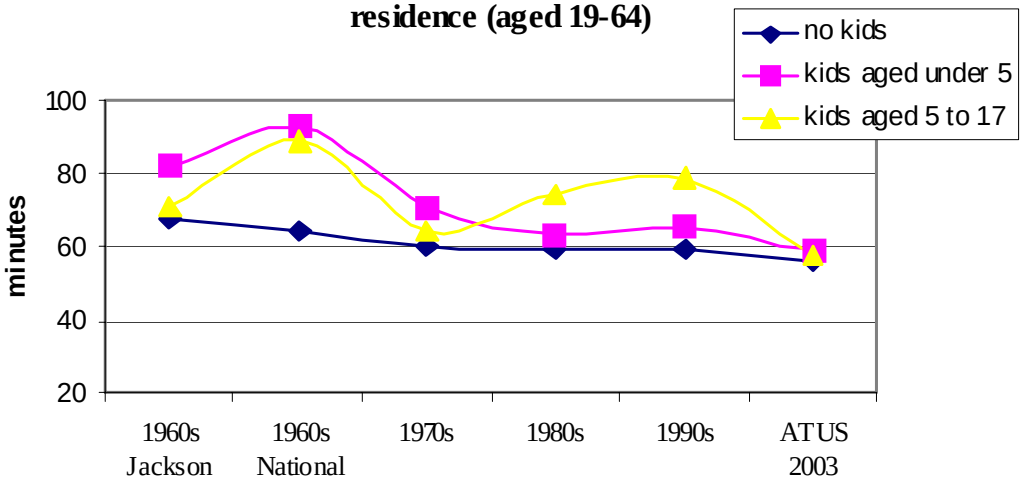

Figure 4.5a: Men - Average minutes on specific house maintenance tasks by survey (age 19-64)

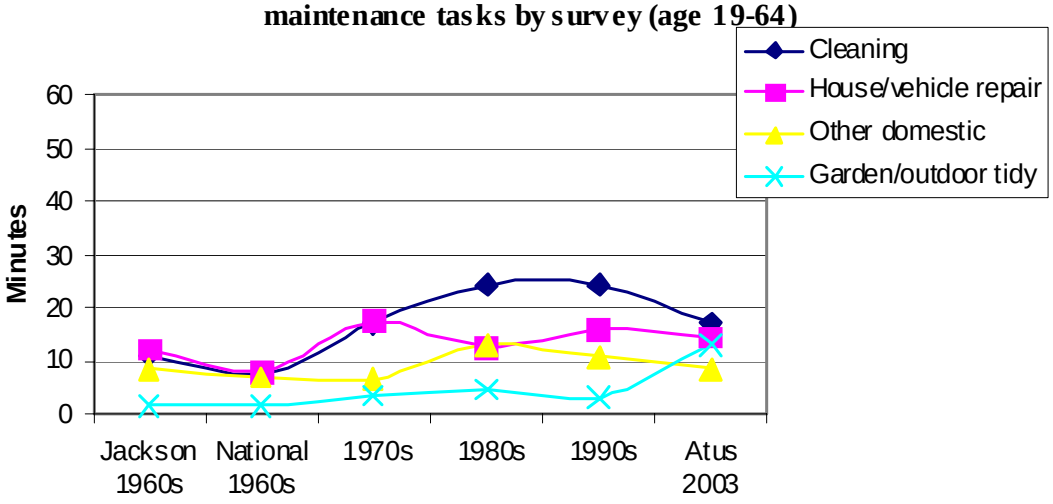

Figure 4.5b: Women - Average minutes spent in specified house maintenance activities by survey (age 19 to 64)

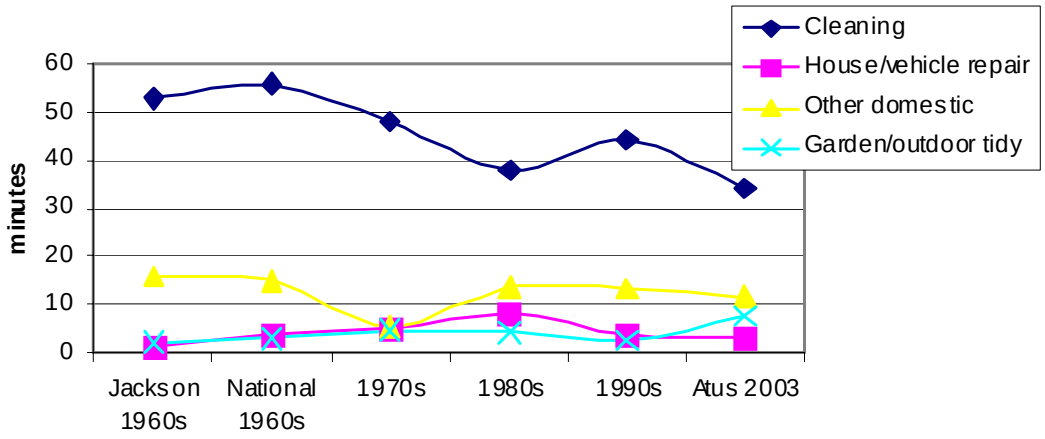

Figure 4.6a: Men - Clothes maintenance by age and survey

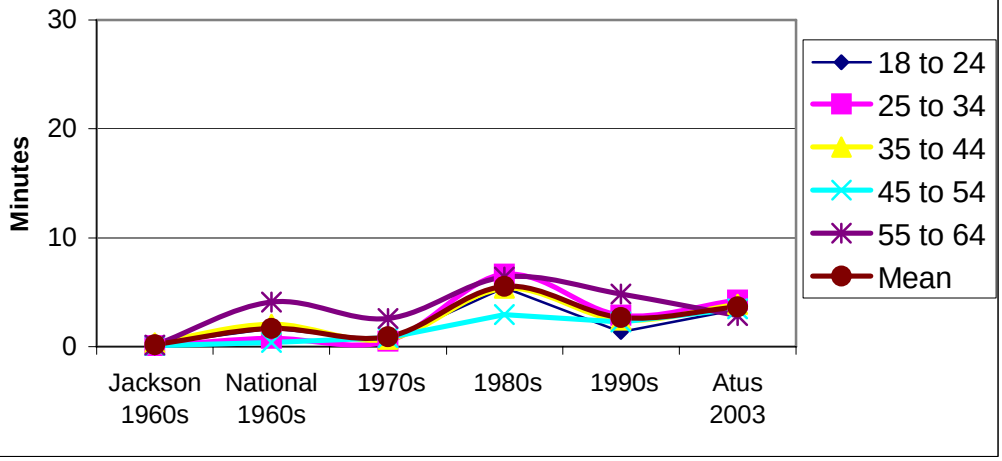

Figure 4.6b: Women - Clothes maintenance by age and survey

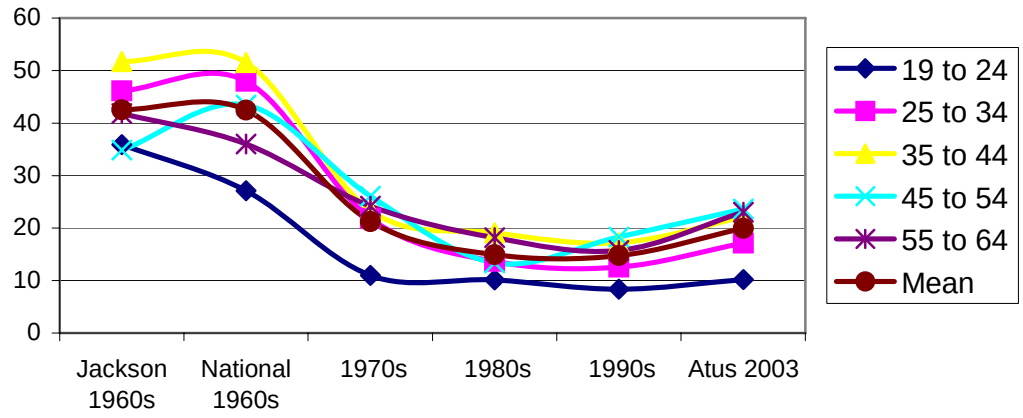

Figure 4.7: Average Minutes in clothes maintenance by gender, survey and age 1975 to 2003

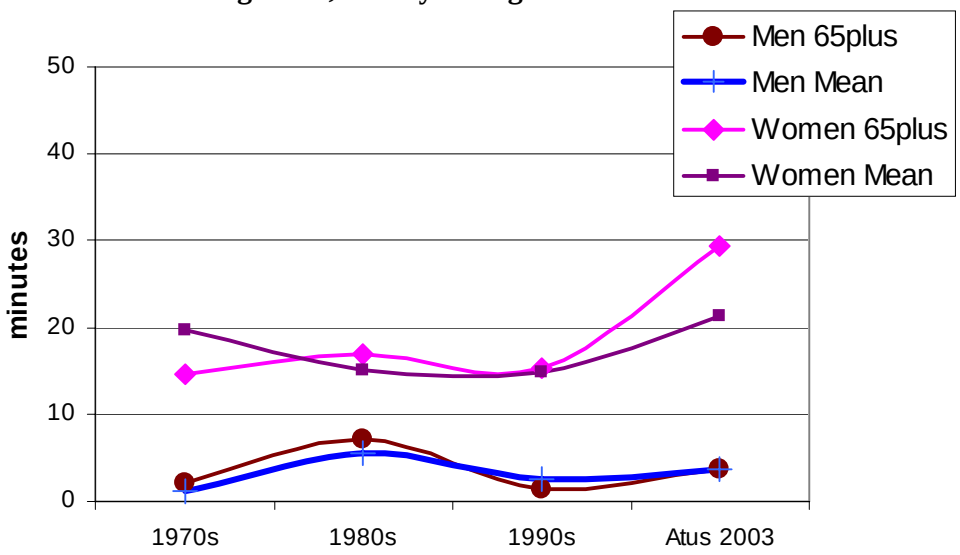

Figure 4.8: Average minutes per day clothing maintenance by survey, gender and co-resident children (1965-2003)

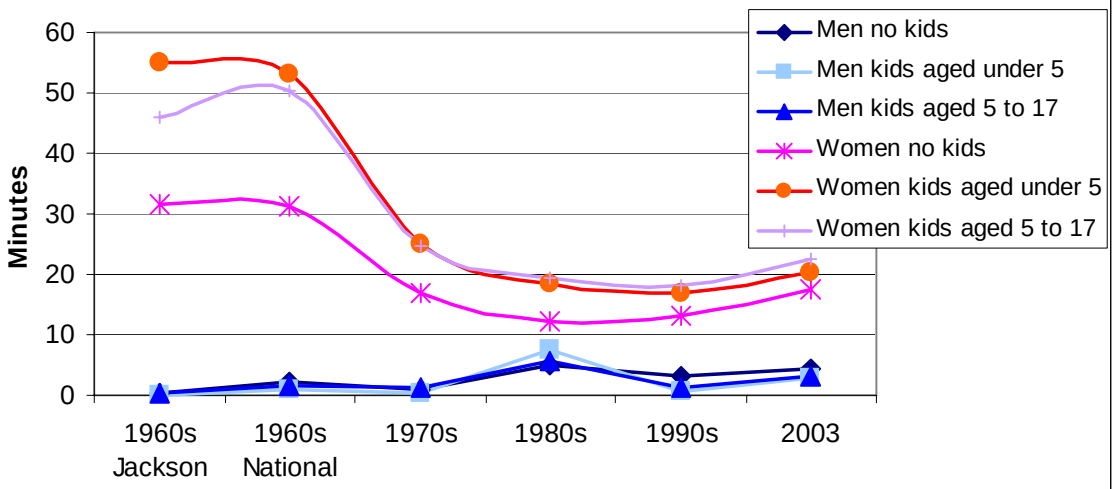

Figure 4.9 : Average minutes on clothes maintenance by survey by employment and gender (age 19-64)

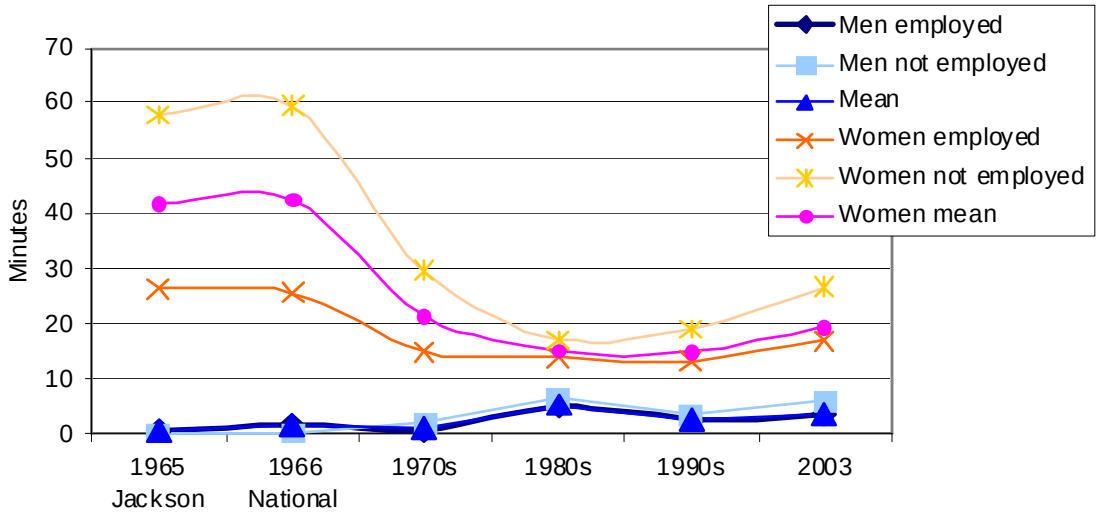

Figure 4.10: Men - Cooking, etc. by survey and age

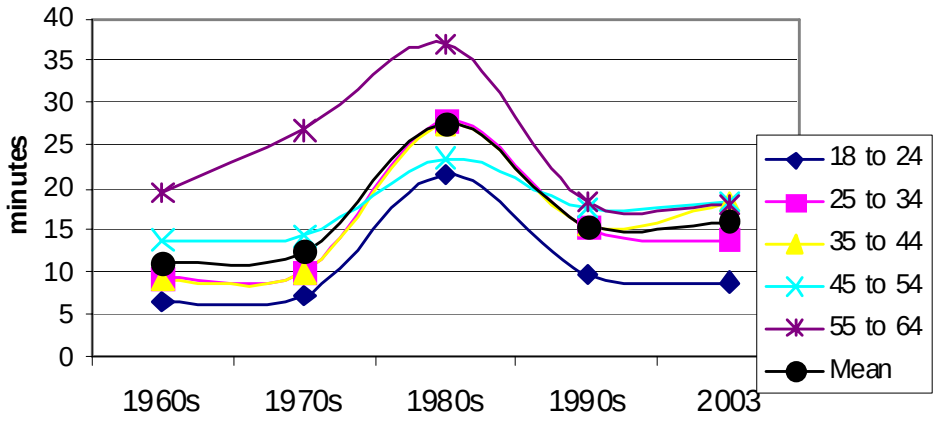

Figure 4.11: Women - Cooking, etc. by survey and age

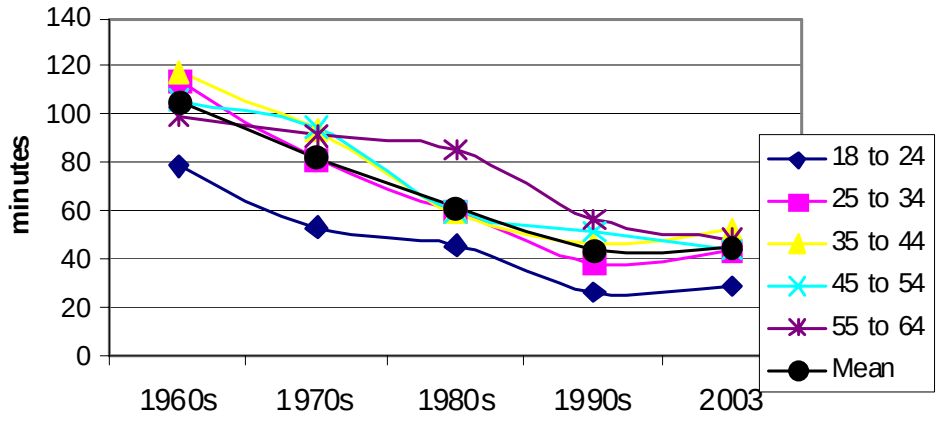

Figure 4.12: Average minutes on cooking, etc. by gender and survey (aged over 65)

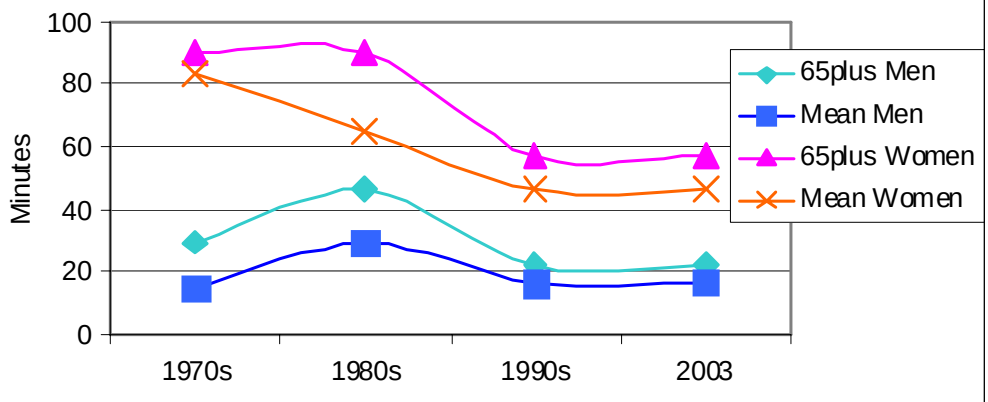

Figure 4.13: Average minutes per day cooking and clearing up by survey, gender and employment

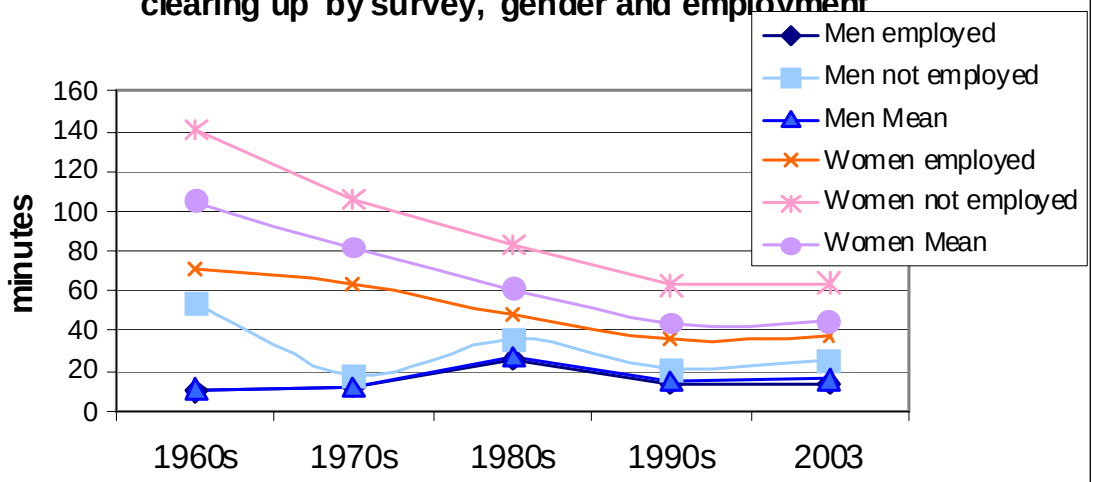

Figure 4.14: Average minutes per day producing meals/snacks by survey, gender and co-resident children (1965-2003)

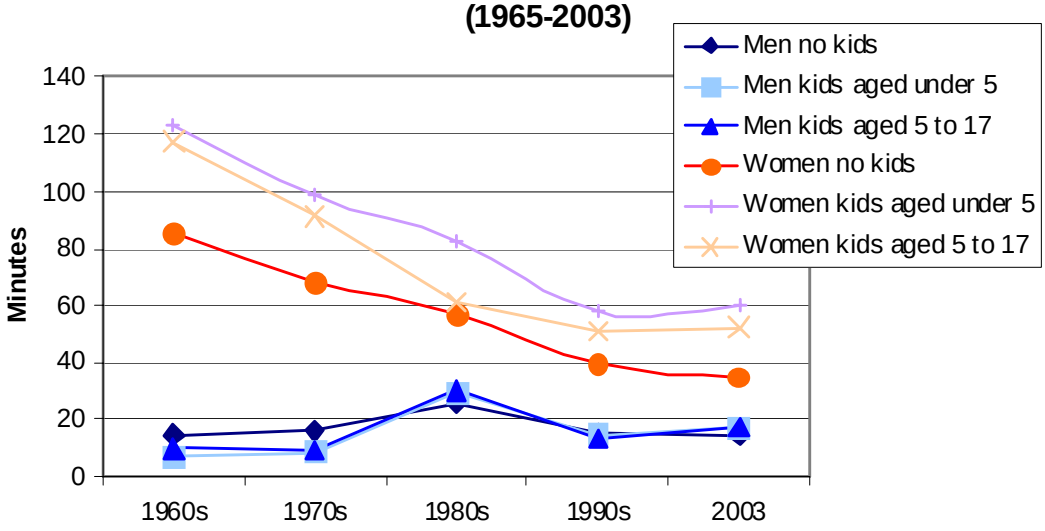

Figure 4.15 : Average minutes on cooking and clearing up as discrete tasks by gender by survey

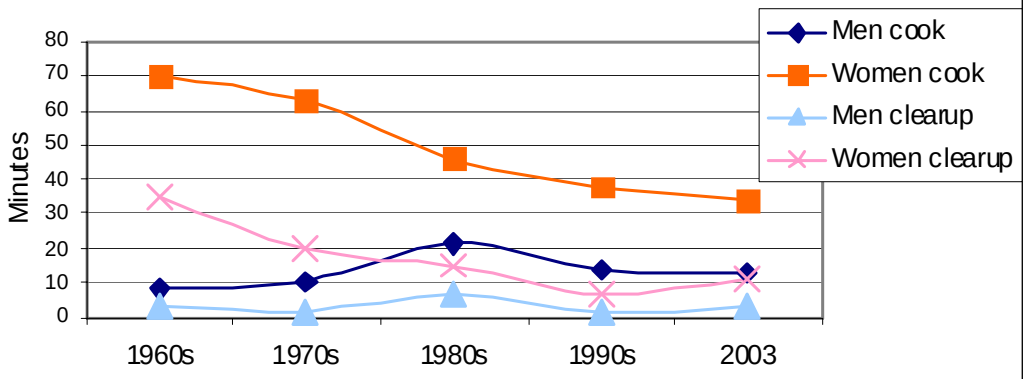

Figure 4.16 : Men : Childcare as main activity by survey and age

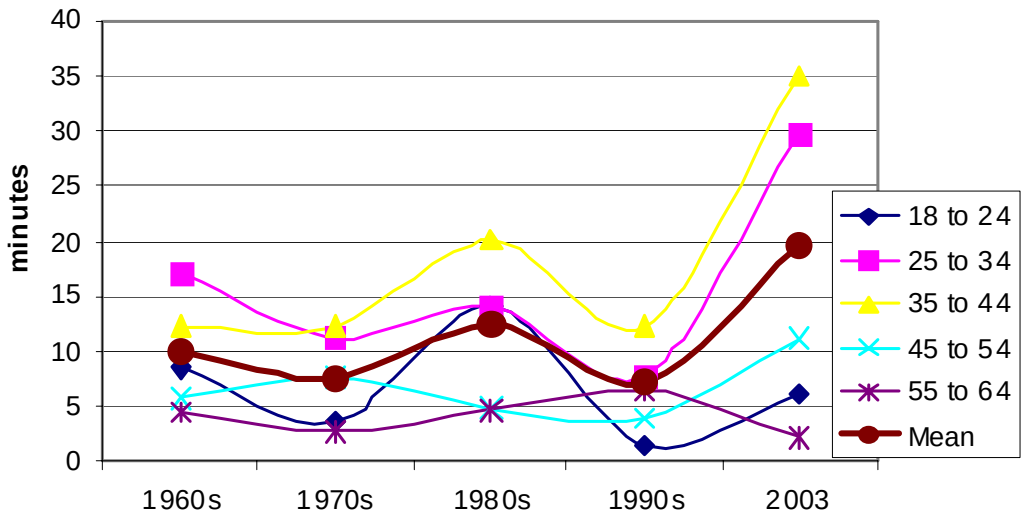

Figure 4.17a: Men - Total secondary childcare by survey and age

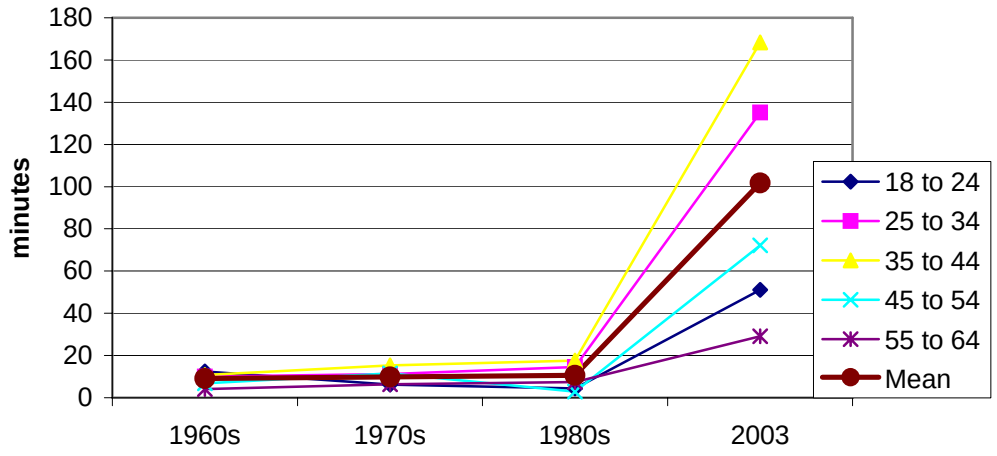

Figure 4.17b: Men - Total secondary childcare by survey and age (1960s-1980s)

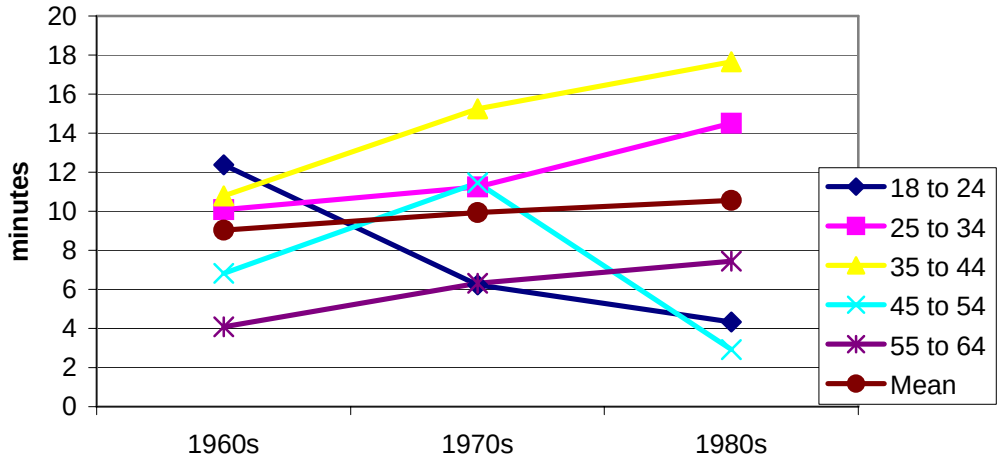

Figure 4.18: Women Childcare as main activity by survey and age

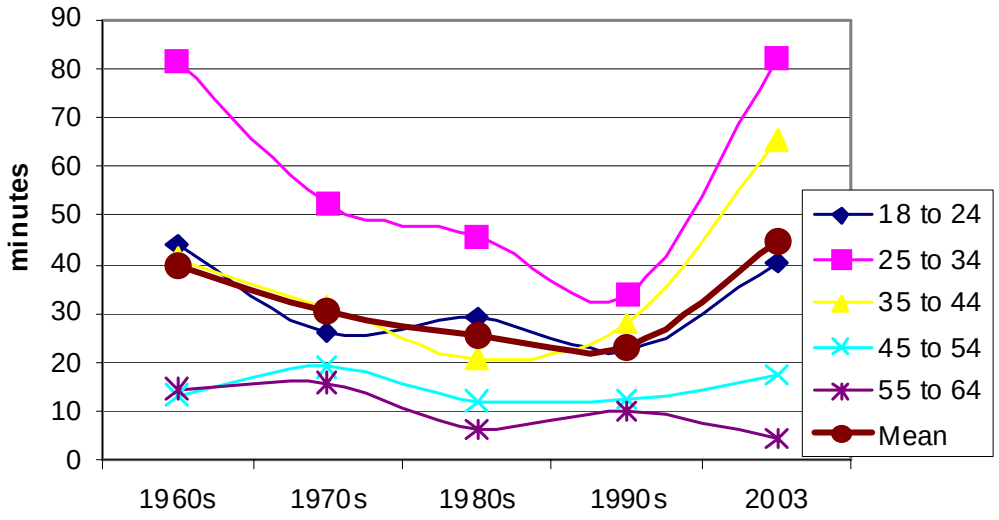

Figure 4.19a: Women - Total secondary childcare by survey and age

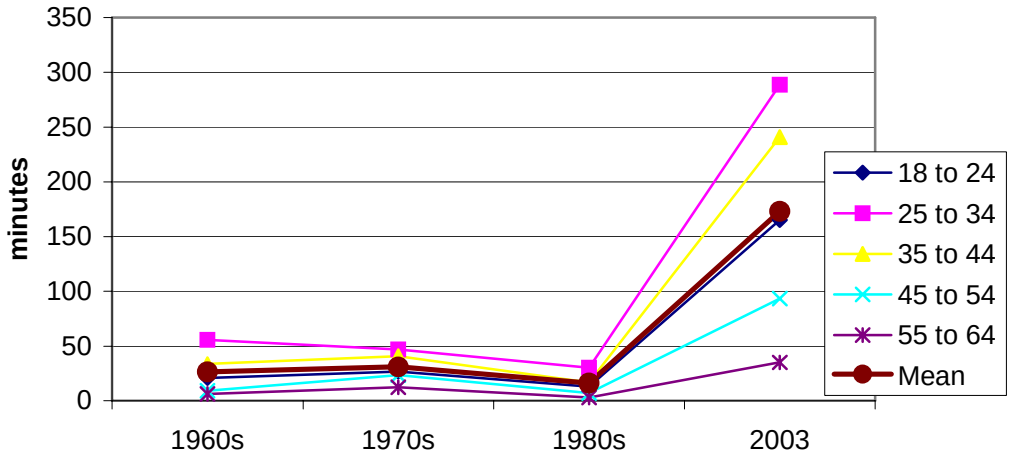

Figure 4.19b: Women - Total secondary childcare by survey and age (1960s-1980s)

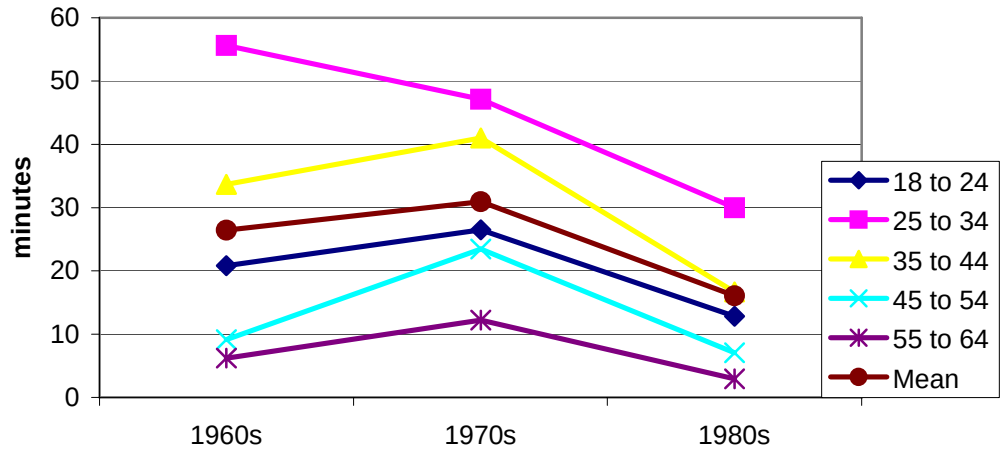

Figure 4.20: Average minutes per day active childcare by survey, gender and employment

Figure 4.21: Average minutes per day active childcare by survey, gender and co-resident children (1965-2003)

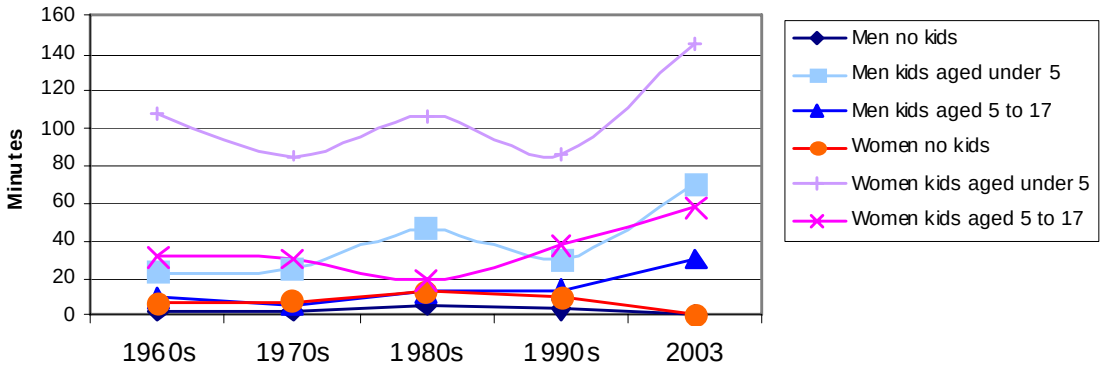

Figure 4.22: Men - Average minutes per day in adult care by survey and age

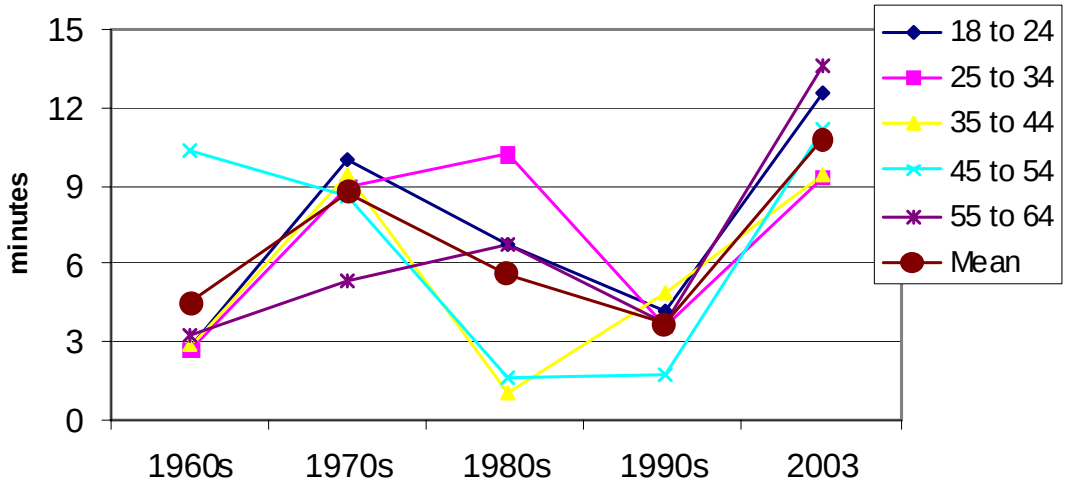

Figure 4.23: Women - Average minutes per day in adult care by survey and age

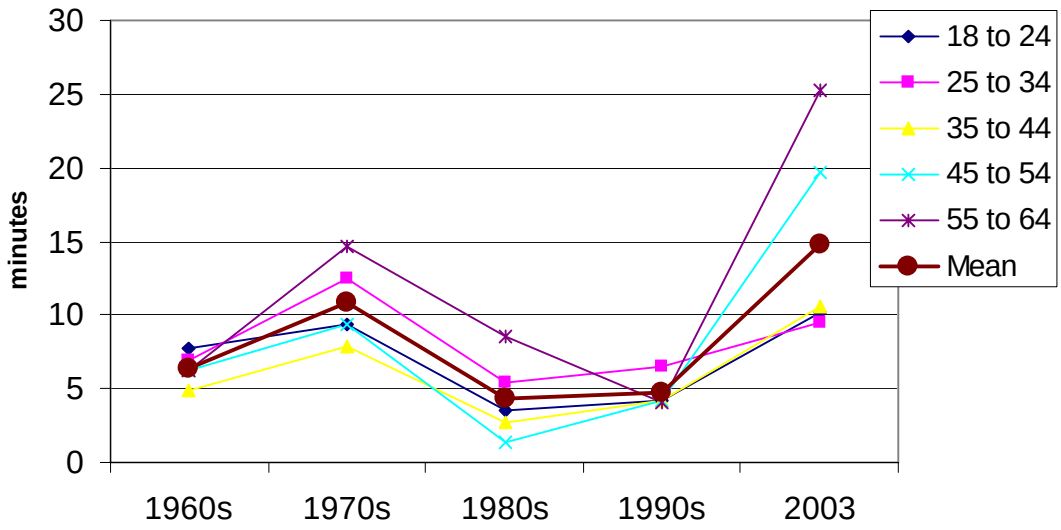

Figure 4.24: Average minutes per day adult care by gender and survey (aged 65 and over)

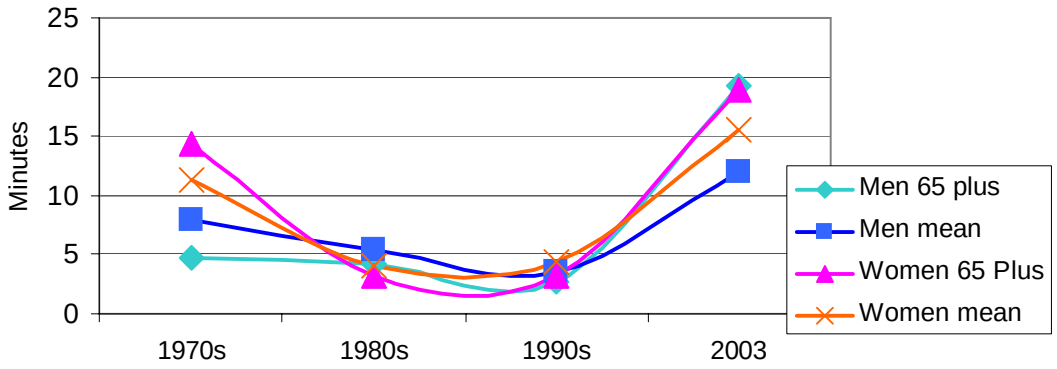

Figure 4.25: Average minutes per day adult care by survey, gender and employment (aged 19-64)

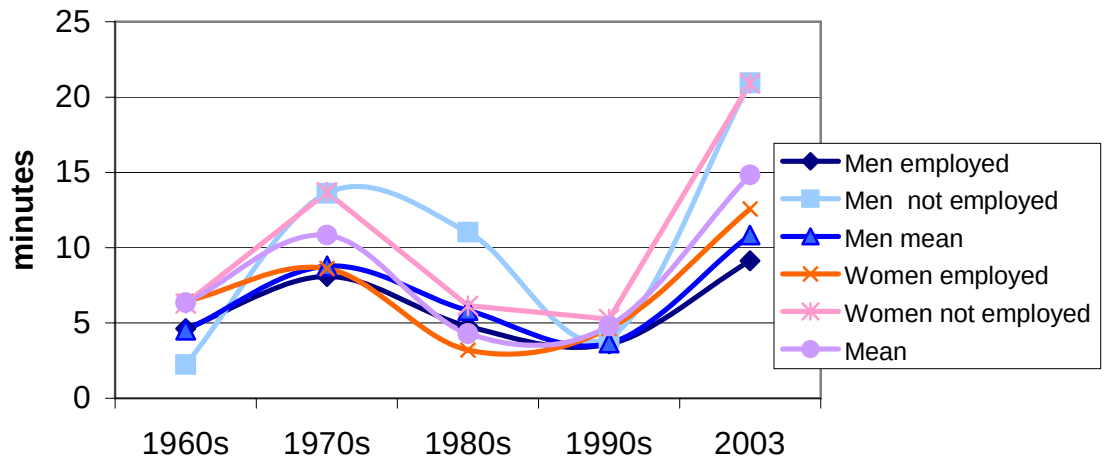

Figure 4.26: Men - Average minutes per day in voluntary work by survey and age

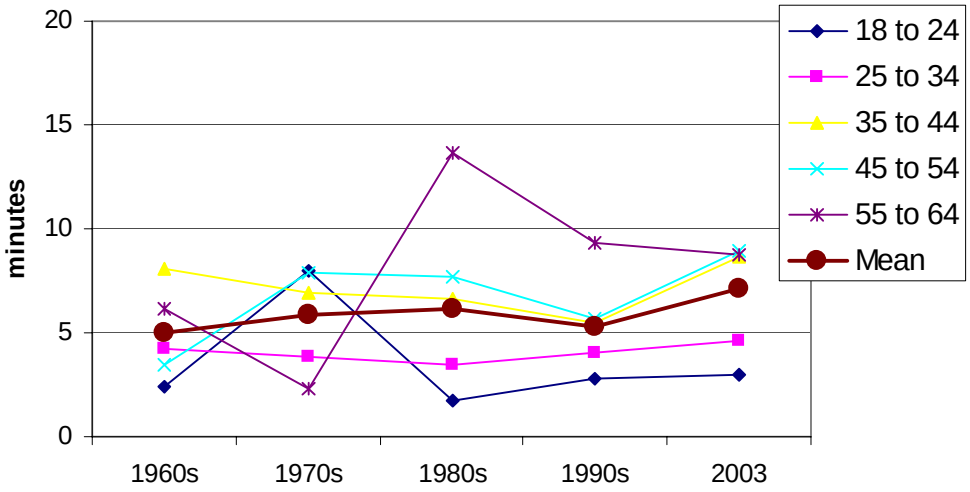

Figure 4.27: Women - Average minutes per day in voluntary work by survey and age

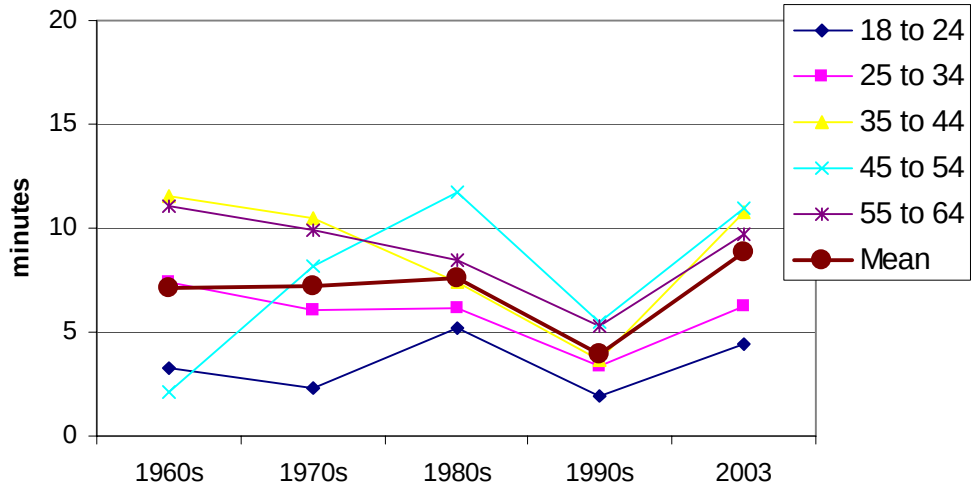

Figure 4.28: Average minutes per day in voluntary work by survey, gender and employment

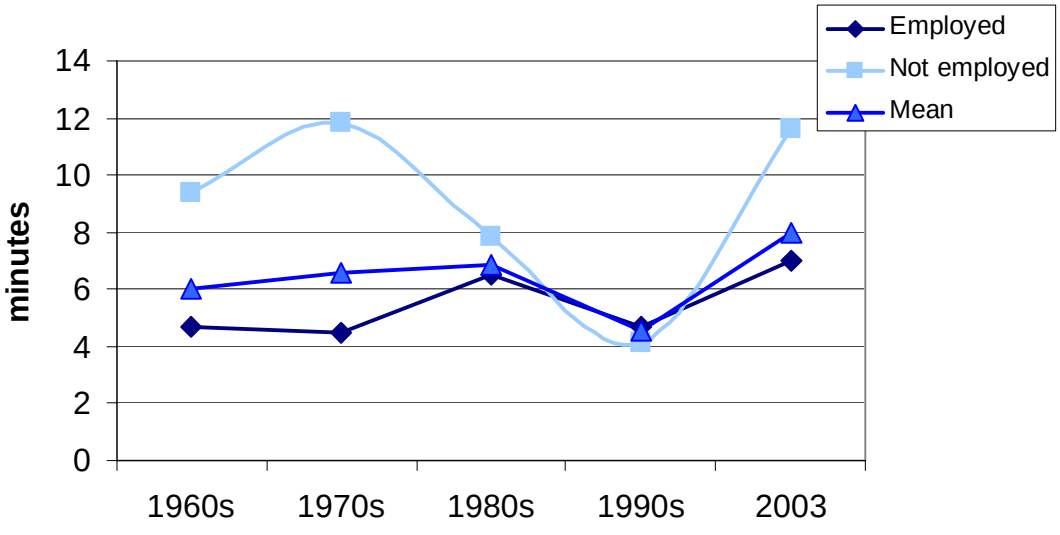

Figure 4.29: Men - Average minutes per day shopping for goods and services by survey and age

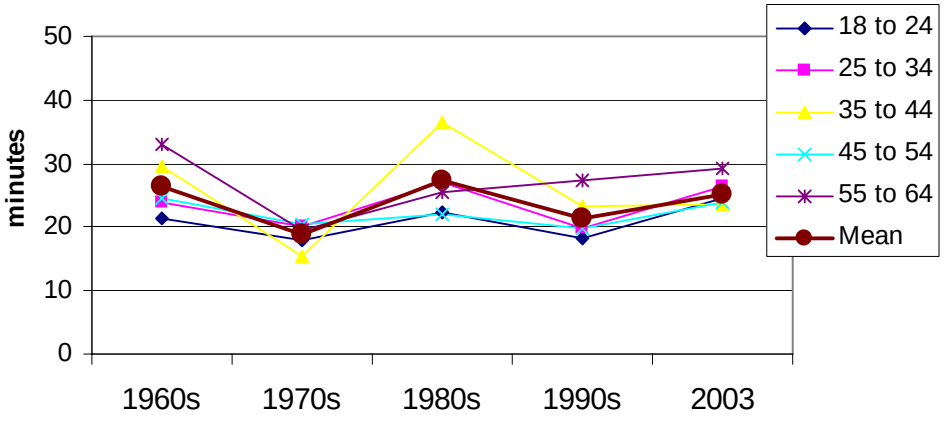

Figure 4.30: Women - Average minutes per day shopping for goods and services by survey and age

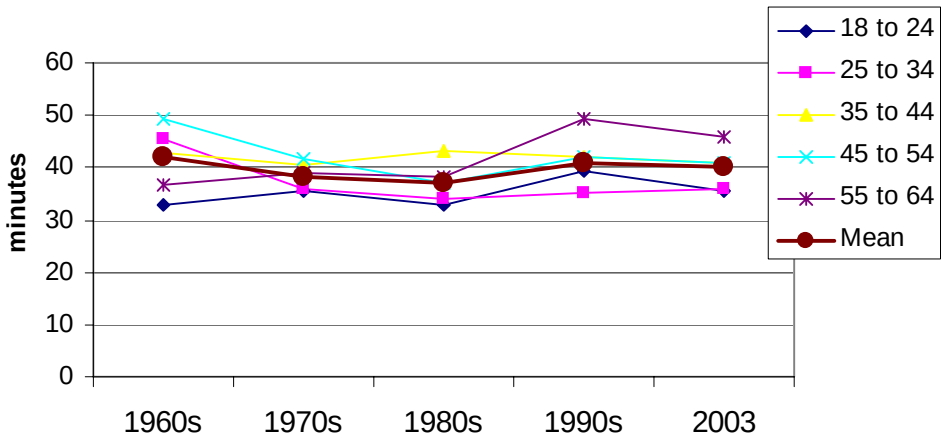

Figure 4.31: Average minutes on shopping for goods and services by gender and survey (aged over 65)

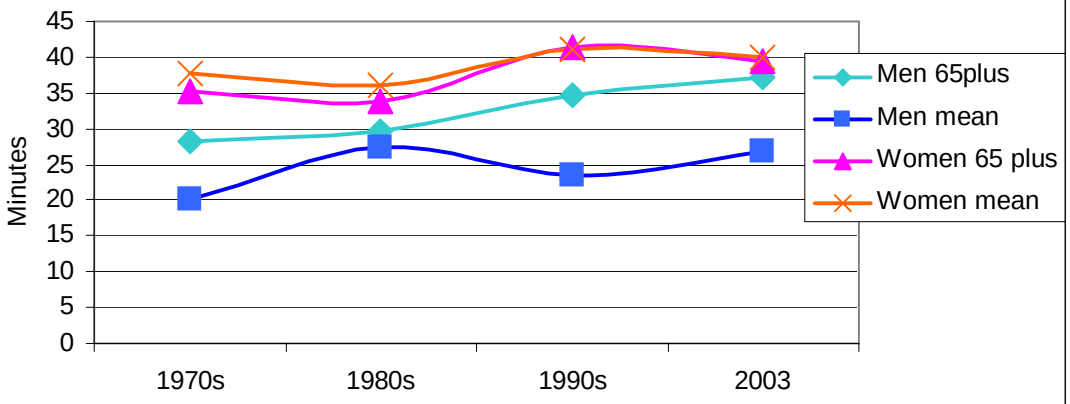

Figure 4.32: Average minutes per day shopping for goods and services by survey, gender and employment

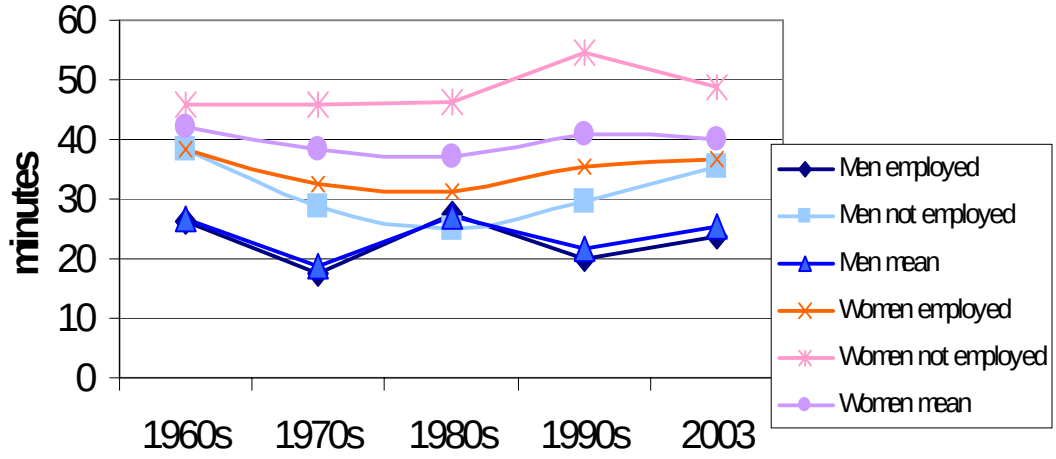

Figure 4.33: Average minutes per day shopping for goods and services by survey, gender and co-resident children

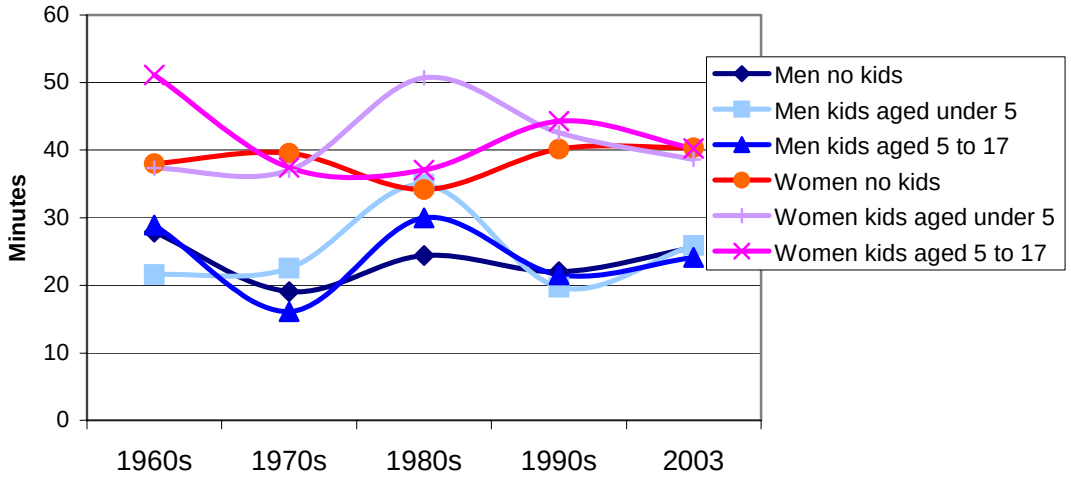

Figure 4.34: Women's Average minutes per day travelling by age and survey

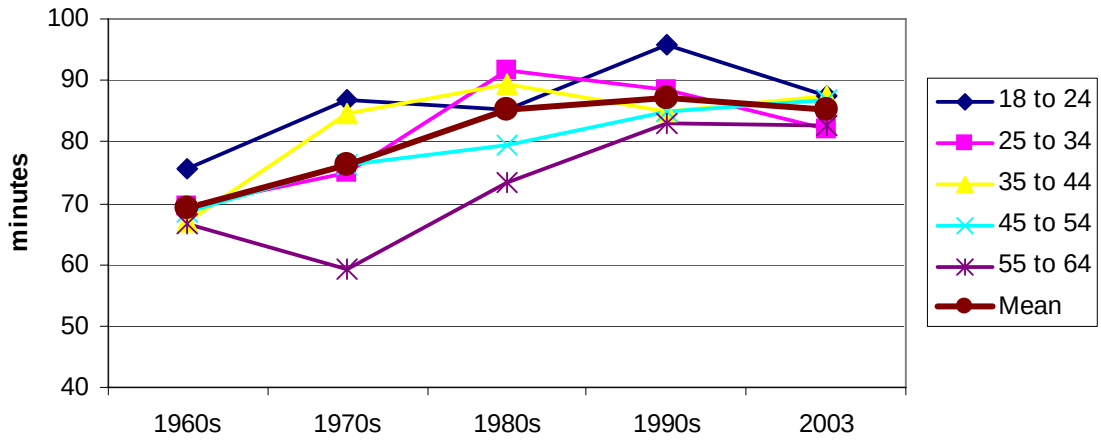

Figure 4.35: Men's Average minutes per day travelling by age and survey

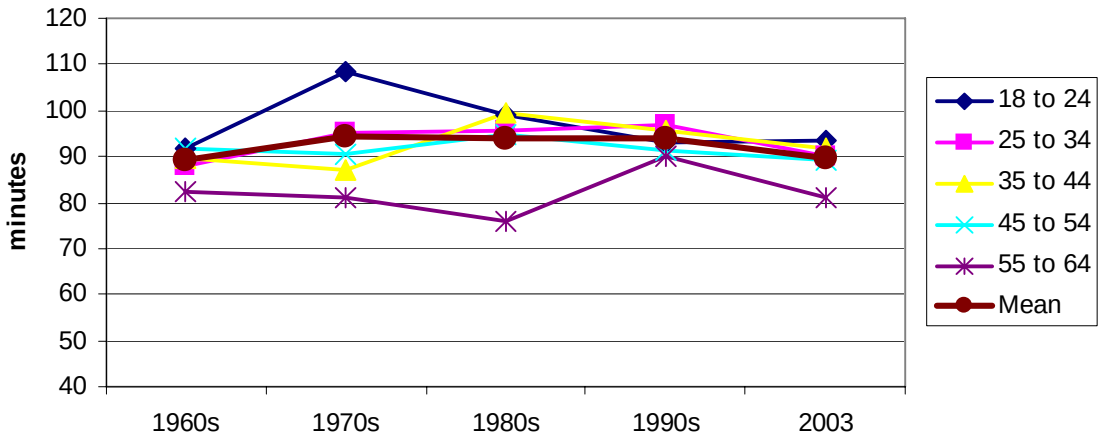

Figure 4.36: Average minutes travelling by gender and survey (aged over 65)

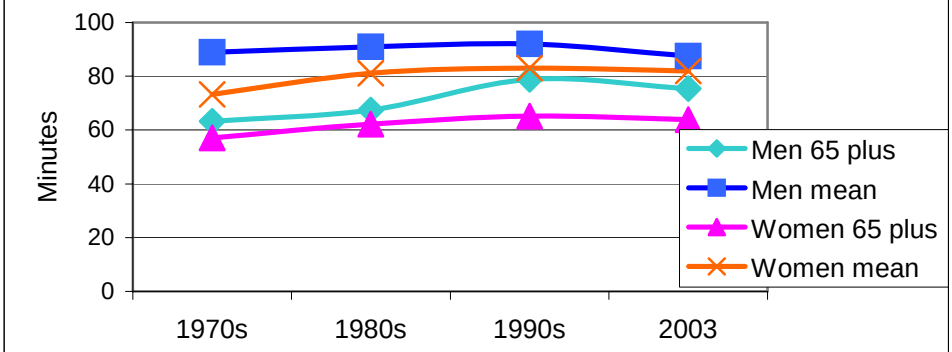

Table A2.1 – Summary description of variable quality*

	1960s			1970s			1980s			1990s			2003			
	Mean	N	Valid %	Mean	N	Valid %	Mean	N	Valid %	Mean	N	Valid %	Mean	N	Valid %	Comment
State		0	0.0		4371	99.3		0	0.0		6912	100.0		17652	100.0	1970s,1990s,&2003
Regionc		1987	100.0		4371	99.3		0	0.0		6912	100.0		17652	100.0	All surveys
Regione		0	0.0		4371	99.3		0	0.0		6912	100.0		0	0.0	1970s&1990s
Urban		1987	100.0		4371	99.3		2554	100.0		6020	87.1		17610	99.8	All surveys,1960s all urban,1970s low rural
Age	39.76	1987	100.0	43.50	4371	99.3	43.23	2554	100.0	44.69	6912	100.0	45.19	17652	100.0	All surveys, 1990s top-coded
Agecat		1987	100.0		4371	99.3		2554	100.0		6912	100.0		17652	100.0	All surveys
Sex		1987	100.0		4371	99.3		2554	100.0		6912	100.0		17652	100.0	All surveys
Ethnic		0	0.0		4358	99.0		0	0.0		6842	99.0		17652	100.0	1970s,1990s,&2003
Ethnic2		1985	99.9		4358	99.0		0	0.0		6842	99.0		17652	100.0	1960s,1970s,1990s,&2003
Hisp		0	0.0		0	0.0		0	0.0		6826	98.8		17652	100.0	1990s&2003
Educ		1977	99.5		4347	98.7		2530	99.1		6873	99.4		17652	100.0	All surveys
Civstat		1987	100.0		4363	99.1		2539	99.4		0	0.0		17652	100.0	Not on 1990s surveys
Famstat		1984	99.8		4357	99.0		2554	100.0		6488	93.9		17652	100.0	All surveys
Hhtype		1987	100.0		4306	97.8		2554	100.0		1770	25.6		17652	100.0	Only people living alone Identified in 1990s
Nadult		0	0.0	1.99	4353	98.9		0	0.0	1.94	6896	99.8	2.02	17652	100.0	1970s, 1990s&2003
Under18	1.40	1982	99.7	0.96	4357	99.0	0.61	2554	100.0	0.45	6793	98.3	0.82	17652	100.0	All surveys
Under5	0.39	1984	99.8	0.18	4371	99.3	0.18	2554	100.0		0	0.0	0.18	17652	100.0	Not on 1990s surveys (ageyngst instead)
Ageyngst		0	0.0	7.18	4217	95.8		0	0.0	7.07	6488	93.9	7.02	17649	100.0	1970s,1990s&2003

* Valid % includes –7 Not applicable

Table A2.1 – Summary description of variable quality* - continued

	1960s			1970s			1980s			1990s			2003			
	Mean	N	Valid %	Mean	N	Valid %	Mean	N	Valid %	Mean	N	Valid %	Mean	N	Valid %	Comment
Fulltime		1972	99.2		4336	98.5		2502	98.0		6877	99.5		17649	100.0	Questions not consistent (see codebook)
Parttime		1972	99.2		4336	98.5		2502	98.0		6877	99.5		17649	100.0	Questions not consistent (see codebook)
Noemploy		1972	99.2		4336	98.5		2502	98.0		6877	99.5		17652	100.0	Questions not consistent (see codebook)
Empstat		1972	99.2		4316	98.0		2502	98.0		6877	99.5		17652	100.0	Questions not consistent (see codebook)
Unemp		1987	100.0		4336	98.5		2554	100.0		6912	100.0		17652	100.0	Questions not consistent (see codebook)
Retdis		1987	100.0		4336	98.5		2554	100.0		6912	100.0		17652	100.0	Questions not consistent (see codebook)
Student		1987	100.0		4336	98.5		2554	100.0		6912	100.0		17652	100.0	Questions not consistent (see codebook)
Homemakr		1987	100.0		4336	98.5		2554	100.0		6912	100.0		17652	100.0	Questions not consistent (see codebook)
Wkhrs	43.74	1987	99.3	40.06	4280	97.2	38.21	2502	98.0	41.16	6801	98.4	40.94	16942	96.0	lower bound 1960s, top-coded all surveys
Nwork	1.47	1987	100.0		0	0.0	1.39	2554	100.0		0	0.0	1.39	17652	100.0	1960s,1990s,&2003
Incomeqt		1944	97.8		3896	88.5		2236	87.6		0	0.0		15593	88.3	All surveys

Tables Corresponding to Figures in Section 4 of Main Report

Appendix Table 4.1a: Minutes per day of total housework by survey, age and sex (19 to 64 year-olds)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	16	2.82	30	3.91	54	7.08	29	4.19	32	3.22	31	1.95
25 to 34	30	4.98	39	4.04	43	4.40	42	3.81	44	2.32	42	1.60
35 to 44	29	4.55	40	4.82	58	6.13	56	4.75	55	2.50	52	1.86
45 to 54	35	5.12	60	6.06	52	8.20	62	5.83	55	2.54	56	2.02
55 to 64	24	4.27	56	7.05	63	6.72	81	7.43	77	4.30	70	2.93
Mean	27	2.07	44	2.27	53	2.79	53	2.31	53	1.29	50	0.91
Women												
18 to 24	51	4.66	37	3.66	51	6.06	35	3.85	34	1.95	38	1.50
25 to 34	89	5.64	68	4.00	55	4.13	55	3.54	52	2.04	58	1.49
35 to 44	77	4.39	66	5.02	72	6.88	70	4.06	62	2.19	66	1.67
45 to 54	80	5.23	65	4.04	77	8.12	71	4.58	61	2.29	66	1.73
55 to 64	83	7.58	83	6.21	71	6.62	86	5.91	70	2.99	76	2.23
Mean	77	2.45	64	2.05	64	2.78	64	1.96	57	1.06	61	0.78
Grand mean	53	1.72	54	1.53	59	1.98	59	1.50	55	0.83	56	0.60

Appendix Table 4.1b: Minutes per day of total housework by survey, age and sex (1975 to 2003 – aged 18 to 90+)

	1970s		1980s		1990s		2003		Total	
Age	Mean	se	Mean	se	Mean	Se	Mean	se	Mean	Se
Men										
18 to 24	29	3.78	51	6.44	28	4.01	30	2.79	31	1.91
25 to 34	39	4.04	43	4.40	42	3.81	44	2.32	43	1.67
35 to 44	40	4.82	58	6.13	56	4.75	55	2.50	54	1.96
45 to 54	60	6.06	52	8.20	62	5.83	55	2.54	57	2.14
55 to 64	56	7.05	63	6.72	81	7.43	77	4.30	74	3.12
65plus	91	7.81	97	8.89	88	6.06	75	3.41	82	2.68
Total	51	2.29	58	2.70	58	2.16	55	1.19	55	0.90
Women										
18 to 24	40	3.61	47	5.50	35	3.72	34	1.81	36	1.48
25 to 34	68	4.00	55	4.13	55	3.54	52	2.04	56	1.53
35 to 44	66	5.02	72	6.88	70	4.06	62	2.19	65	1.77
45 to 54	65	4.04	77	8.12	71	4.58	61	2.29	65	1.82
55 to 64	83	6.21	71	6.62	86	5.91	70	2.99	75	2.33
65plus	80	5.71	70	5.46	87	4.42	74	2.57	77	1.97
Total	66	1.95	64	2.45	68	1.79	60	0.97	63	0.75
Grand mean	59	1.49	62	1.81	63	1.38	58	0.76	59	0.58

Appendix Table 4.2a: Minutes per day of housing maintenance by employment status by survey by gender (respondents age 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	Se	Mean	se	Mean	se	Mean	se
Employed	27	2.12	41	2.36	47	2.88	48	2.35	47	1.26	45	0.90
Not employed	37	10.59	56	7.60	81	8.71	86	7.72	83	4.65	79	3.33
Mean	27	2.09	43	2.28	53	2.84	53	2.32	52	1.28	49	0.91
Women												
Employed	53	3.08	50	2.53	56	3.40	50	2.04	47	1.14	49	0.87
Not employed	102	3.55	82	3.32	79	4.83	98	4.42	82	2.33	87	1.55
Mean	77	2.47	64	2.07	65	2.81	63	1.96	57	1.06	61	0.78
Grand mean	54	1.73	54	1.54	59	2.00	59	1.50	54	0.83	56	0.60

Appendix Table 4.2b: Minutes per day of housing maintenance by employment status (1975 to 2003 – aged 18 to 90+)

Economic Activity	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
employed	42	2.33	49	2.90	48	2.31	46	1.21	46	0.93
not employed	78	6.08	86	6.31	87	5.10	81	3.05	82	2.27
All	50	2.30	59	2.74	58	2.17	54	1.18	55	0.90
Women										
employed	50	2.47	55	3.27	50	1.99	47	1.11	49	0.88
not employed	83	2.90	77	3.71	94	3.25	78	1.75	82	1.30
All	67	1.95	65	2.47	67	1.79	59	0.97	63	0.75
Grand Mean	59	1.50	62	1.84	63	1.39	57	0.76	59	0.58

Appendix Table 4.3a: Minutes per day of housing maintenance by child co-residence (respondents age 19-64)

Child co-residence	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	21	2.37	41	3.01	47	3.44	54	2.71	50	1.65	50	1.65
kids aged under 5	30	4.39	41	5.33	52	6.08	53	8.89	54	3.20	54	3.20
kids aged 5 to 17	33	4.14	47	4.39	66	6.20	48	5.25	56	2.62	56	2.62
All	27	2.08	43	2.27	53	2.79	53	2.32	52	1.28	52	1.28
Women												
no kids	66	3.86	60	3.24	60	3.20	59	2.33	55	1.52	55	1.52
kids aged under 5	89	4.67	71	4.50	64	6.83	66	5.74	59	2.31	59	2.31
kids aged 5 to 17	82	4.25	64	3.24	74	6.48	79	4.82	58	1.89	58	1.89
All	77	2.46	64	2.06	64	2.78	64	1.98	57	1.06	57	1.06
Grand Mean	53	1.72	54	1.54	59	1.98	59	1.51	55	0.83	56	0.60

Appendix Table 4.3b: Minutes per day of housing maintenance by child co-residence (1975-2003 age 18-90+)

Child co-residence	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	54	3.2	57	3.4	60	2.5	56	1.6	57	1.2
kids aged under 5	40	5.2	52	6.0	55	9.0	54	2.9	52	2.3
kids aged 5 to 17	48	4.2	65	6.0	48	5.1	55	2.3	54	1.8
All	50	2.3	58	2.7	58	2.2	55	1.2	55	0.9
Women										
no kids	66	2.8	62	2.7	66	2.1	62	1.4	64	1.0
kids aged under 5	72	4.4	64	6.8	66	5.7	58	2.1	61	1.8
kids aged 5 to 17	65	3.3	72	6.2	77	4.7	57	1.7	62	1.5
All	67	1.9	64	2.4	68	1.8	60	1.0	63	0.8
Grand mean	59	1.5	62	1.8	63	1.4	58	0.8	59	0.6

Appendix Table 4.4a: Minutes per day of clothes maintenance by survey, age and sex (19 to 64 year-olds)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	1	0.57	1	0.21	5	1.58	1	0.64	3	0.70	2	0.36
25 to 34	1	0.33	0	0.32	7	1.57	3	0.58	4	0.55	3	0.34
35 to 44	1	0.78	1	0.48	5	1.37	2	0.76	4	0.51	3	0.35
45 to 54	0	0.20	1	0.42	3	1.18	2	0.71	3	0.45	3	0.31
55 to 64	3	2.22	3	1.32	6	2.29	5	1.82	3	0.49	3	0.51
Mean	1	0.40	1	0.24	6	0.73	3	0.39	4	0.24	3	0.16
Women												
18 to 24	30	4.60	11	1.55	10	1.93	8	1.69	10	1.03	12	0.77
25 to 34	47	4.30	22	2.09	14	1.73	13	1.41	17	1.13	18	0.77
35 to 44	52	4.46	23	2.47	19	2.69	17	1.50	22	1.05	23	0.80
45 to 54	40	3.95	26	2.63	13	2.10	18	2.10	24	1.24	24	0.92
55 to 64	38	4.70	24	2.63	18	2.56	16	2.15	23	1.50	23	1.04
Mean	43	1.98	21	1.03	15	1.00	15	0.78	20	0.55	20	0.39
Grand Mean	23	1.16	12	0.59	11	0.64	9	0.47	12	0.31	12	0.22

Appendix Table 4.4b: Minutes per day of clothes maintenance by survey, age and sex (1970s to 2003 – 18 to 90+ year-olds)

	1970s		1980s		1990s		2003		Total	
Age	Mean	Se	Mean	Se	Mean	se	Mean	se	Mean	se
Men										
18 to 24	1	0.21	5	1.40	1	0.61	3	0.59	2	0.35
25 to 34	0	0.32	7	1.57	3	0.58	4	0.55	4	0.36
35 to 44	1	0.48	5	1.37	2	0.76	4	0.51	3	0.37
45 to 54	1	0.42	3	1.18	2	0.71	3	0.45	3	0.33
55 to 64	3	1.32	6	2.29	5	1.82	3	0.49	4	0.52
65plus	2	0.88	7	1.84	1	0.57	4	0.65	3	0.43
Mean	1	0.25	6	0.67	2	0.34	4	0.22	3	0.16
Women										
18 to 24	11	1.48	10	1.75	8	1.58	10	0.93	10	0.66
25 to 34	22	2.09	14	1.73	13	1.41	17	1.13	16	0.76
35 to 44	23	2.47	19	2.69	17	1.50	22	1.05	21	0.78
45 to 54	26	2.63	13	2.10	18	2.10	24	1.24	22	0.94
55 to 64	24	2.63	18	2.56	16	2.15	23	1.50	21	1.06
65plus	15	1.90	17	2.26	15	1.71	29	1.77	23	1.08
Mean	20	0.90	15	0.90	15	0.71	21	0.54	19	0.37
Grand mean	11	0.52	11	0.58	9	0.43	13	0.31	12	0.21

Appendix Table 4.5a: Minutes per day of clothes maintenance by survey, employment and sex (19 to 64 year-olds)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	1	0.42	1	0.19	5	0.80	3	0.42	3	0.25	3	0.17
Not employed	0	0.00	2	1.45	7	1.87	3	1.07	6	0.82	5	0.57
Mean	1	0.40	1	0.24	5	0.74	3	0.39	4	0.25	3	0.17
Women												
Employed	26	2.05	15	1.09	14	1.22	13	0.86	17	0.57	16	0.41
Not employed	59	3.23	30	1.87	17	1.75	19	1.70	27	1.27	28	0.84
Mean	42	1.97	21	1.04	15	1.01	15	0.78	19	0.54	20	0.39
Grand mean	23	1.15	12	0.59	10	0.65	9	0.47	12	0.31	12	0.22

Appendix Table 4.5b: Minutes per day of clothes maintenance by survey, employment and sex (1975-2003 – aged 18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	1	0.18	5	0.78	3	0.40	3	0.24	3	0.17
Not employed	2	0.89	6	1.33	2	0.64	5	0.57	4	0.39
Mean	1	0.25	5	0.67	2	0.34	4	0.23	3	0.16
Women										
Employed	15	1.06	14	1.15	13	0.84	17	0.56	15	0.40
Not employed	25	1.43	17	1.44	17	1.24	28	1.08	24	0.68
Mean	20	0.91	15	0.91	15	0.71	21	0.54	19	0.37
Grand mean	11	0.53	11	0.59	9	0.43	13	0.31	12	0.22

Appendix Table 4.6a: Minutes per day of clothes maintenance by survey, co-resident children and sex (19 to 64 year-olds)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	1.4	0.9	1.0	0.3	4.9	1.0	3.2	0.5	4.3	0.4	3.6	0.2
kids aged under 5	0.7	0.3	0.2	0.1	7.6	2.3	0.8	0.7	2.9	0.4	2.3	0.3
kids aged 5 to 17	1.1	0.6	1.3	0.6	5.8	1.2	1.3	0.6	3.2	0.4	2.7	0.3
All	1.1	0.4	0.9	0.2	5.5	0.7	2.7	0.4	3.8	0.2	3.2	0.2
Women												
no kids	31.3	2.8	16.9	1.4	12.1	1.1	13.2	0.9	17.5	0.7	16.6	0.5
kids aged under 5	53.8	4.1	25.2	2.5	18.4	2.8	16.8	2.5	20.2	1.2	23.8	1.0
kids aged 5 to 17	48.6	3.6	24.6	1.9	19.5	2.4	18.0	1.8	22.6	1.0	24.1	0.8
Total	42.6	2.0	21.2	1.0	15.0	1.0	14.5	0.8	19.5	0.5	20.0	0.4
Grand Mean	22.9	1.2	11.7	0.6	10.5	0.6	9.2	0.5	11.9	0.3	12.0	0.2

Appendix Table 4.6b: Minutes per day of clothes maintenance by survey, co-resident children and sex (18 to 90+ year-olds)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	1	0.3	5	0.9	3	0.4	4	0.3	4	0.2
kids aged under 5	0	0.1	7	2.2	2	1.4	3	0.4	3	0.4
kids aged 5 to 17	2	0.6	5	1.1	1	0.6	3	0.4	3	0.3
Mean	1	0.2	6	0.7	2	0.3	4	0.2	3	0.2
Women										
no kids	16	1.1	13	1.0	13	0.8	21	0.7	17	0.5
kids aged under 5	25	2.6	18	2.8	17	2.4	20	1.2	20	0.9
kids aged 5 to 17	24	1.8	19	2.3	18	1.8	23	1.1	22	0.8
Mean	20	0.9	15	0.9	15	0.7	21	0.5	19	0.4
Grand Mean	11	0.5	11	0.6	9	0.4	13	0.3	12	0.2

Appendix Table 4.7a: Minutes per day of cooking and clearing up by survey, age and sex (19 to 64 year-olds)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	Se	Mean	se	Mean	Std Error	Mean	Std Error
18 to 24	6.4	1.2	7.0	0.7	21.6	3.6	9.8	1.5	8.8	0.7	9.5	0.6
25 to 34	9.2	1.6	9.9	1.0	27.9	2.8	15.2	1.3	13.7	0.7	14.5	0.5
35 to 44	9.0	1.4	10.0	1.5	27.4	2.9	15.5	1.1	18.3	0.9	17.0	0.6
45 to 54	13.7	2.0	14.1	1.8	23.3	2.8	17.5	1.5	18.1	0.9	17.6	0.6
55 to 64	19.3	4.0	26.8	2.7	37.0	4.0	18.2	2.2	17.9	1.0	20.7	0.9
All	11.2	0.9	12.4	0.7	27.4	1.4	15.4	0.6	15.9	0.4	15.9	0.3
Women												
18 to 24	78.9	5.0	53.2	2.9	45.5	4.4	26.6	2.3	28.7	1.5	38.1	1.2
25 to 34	114.3	4.7	81.2	3.1	59.4	3.4	38.2	1.9	43.8	1.4	53.6	1.0
35 to 44	117.9	4.9	93.9	4.3	58.7	3.7	46.3	2.0	52.3	1.4	59.6	1.1
45 to 54	106.1	4.3	94.8	4.1	59.5	4.9	51.5	2.4	43.5	1.4	56.8	1.2
55 to 64	99.7	6.1	91.3	4.1	85.6	5.7	56.6	3.7	48.1	1.7	62.3	1.5
All	105.0	2.2	82.4	1.7	61.1	1.9	43.9	1.1	44.6	0.7	54.9	0.5
Grand mean	60.6	1.6	49.7	1.1	45.2	1.3	30.9	0.7	30.7	0.4	36.4	0.3

Appendix Table 4.7b: Minutes per day of cooking and clearing up by survey, age and sex (aged 18 to 90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	6.7	0.7	21.3	3.2	9.5	1.4	8.0	0.6	9.2	0.5
25 to 34	9.9	1.0	27.9	2.8	15.2	1.3	13.7	0.7	14.8	0.6
35 to 44	10.0	1.5	27.4	2.9	15.5	1.1	18.3	0.9	17.6	0.6
45 to 54	14.1	1.8	23.3	2.8	17.5	1.5	18.1	0.9	17.9	0.7
55 to 64	26.8	2.7	37.0	4.0	18.2	2.2	17.9	1.0	20.8	0.9
65plus	29.7	2.8	46.0	4.6	21.7	1.8	21.6	1.1	24.7	0.9
All	15.1	0.7	29.7	1.4	16.2	0.6	16.5	0.4	17.3	0.3
Women										
18 to 24	52.2	2.7	42.2	4.0	25.4	2.2	26.5	1.4	32.6	1.1
25 to 34	81.2	3.1	59.4	3.4	38.2	1.9	43.8	1.4	49.5	1.0
35 to 44	93.9	4.3	58.7	3.7	46.3	2.0	52.3	1.4	55.3	1.1
45 to 54	94.8	4.1	59.5	4.9	51.5	2.4	43.5	1.4	52.9	1.2
55 to 64	91.3	4.1	85.6	5.7	56.6	3.7	48.1	1.7	59.5	1.5
65plus	90.6	3.7	90.3	4.4	56.9	2.7	57.2	1.8	64.7	1.4
All	83.2	1.5	65.4	1.8	46.0	1.0	46.2	0.6	53.0	0.5
Grand mean	52.1	1.0	49.0	1.2	32.8	0.6	32.0	0.4	36.4	0.3

Appendix Table 4.8a: Minutes per day of cooking and clearing up by survey, employment and sex (19 to 64 year-olds)

	1960s		1970s		1980s		1990s		2003		All	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	10	0.76	12	0.66	26	1.47	14	0.69	14	0.39	14	0.29
Not employed	54	16.80	18	2.53	36	4.61	21	1.84	25	1.36	25	1.04
Mean	11	0.92	12	0.66	27	1.46	15	0.65	16	0.39	16	0.29
Women												
Employed	71	2.40	64	1.91	48	2.03	36	1.08	37	0.70	42	0.54
Not employed	141	3.15	106	2.77	83	3.76	63	2.47	64	1.50	81	1.12
Mean	105	2.26	82	1.69	61	1.96	44	1.06	45	0.67	55	0.53
Grand mean	61	1.66	50	1.12	46	1.30	31	0.67	31	0.41	36	0.33

Appendix Table 4.8b: Minutes per day of cooking and clearing up by survey, employment and sex (18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	12.51	0.69	26	1.45	15	0.67	14	0.37	15	0.30
Not employed	23.73	2.11	40	3.40	21	1.31	24	0.94	25	0.73
Mean	15.08	0.73	30	1.40	16	0.60	16	0.36	17	0.29
Women										
Employed	63.18	1.84	49	1.96	37	1.05	37	0.68	41	0.53
Not employed	101.38	2.27	86	2.98	61	1.89	61	1.18	71	0.90
Mean	83.19	1.53	66	1.80	46	0.99	46	0.63	53	0.50
Grand mean	52.06291	1.03	49	1.22	33	0.64	32	0.39	36	0.31

Appendix Table 4.9a: Minutes per day of cooking and clearing up by survey, child co-residence and sex (19 to 64 year-olds)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	15	1.86	16	1.06	26	1.75	16	0.79	15	0.47	16	0.37
kids aged under 5	7	1.12	8	1.13	29	4.16	14	1.99	17	1.00	15	0.70
kids aged 5 to 17	10	1.45	9	1.05	30	2.93	14	1.22	18	0.85	16	0.59
Mean	11	0.92	12	0.66	27	1.43	15	0.65	16	0.39	16	0.29
Women												
no kids	85	3.31	69	2.45	57	2.39	40	1.28	35	0.81	44	0.66
kids aged under 5	123	4.33	99	3.70	82	6.43	57	3.44	60	1.72	73	1.39
kids aged 5 to 17	117	3.93	91	2.85	61	3.62	51	2.19	52	1.30	64	1.04
Mean	105	2.25	83	1.69	61	1.94	44	1.06	45	0.67	55	0.53
Grand Mean	61	1.65	50	1.12	45	1.28	31	0.68	31	0.41	36	0.33

Appendix Table 4.9b: Minutes per day of cooking and clearing up by survey, child co-residence and sex (18 to 90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	19	1.02	29	1.61	17	0.73	16	0.45	18	0.35
kids aged under 5	8	1.10	31	4.41	15	2.18	17	0.98	16	0.78
kids aged 5 to 17	12	1.46	32	3.07	13	1.20	17	0.81	17	0.64
Mean	15	0.73	30	1.38	16	0.62	16	0.36	17	0.29
Women										
no kids	75	2.06	65	2.16	44	1.18	41	0.78	48	0.62
kids aged under 5	98	3.66	82	6.43	57	3.41	60	1.71	67	1.42
kids aged 5 to 17	90	2.81	60	3.47	50	2.18	51	1.26	59	1.02
Mean	83	1.52	65	1.78	46	1.00	46	0.63	53	0.50
	49	1.33	49	1.46	31	0.74	29	0.47	33	0.38
Grand Mean	52	1.03	49	1.20	33	0.64	32	0.39	36	0.31

Appendix Table 4.10a: Minutes per day main activity childcare by survey, age and sex (19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	8	1.68	4	0.97	14	4.18	1	0.70	6	1.03	6	0.64
25 to 34	17	2.27	11	1.60	14	2.35	8	1.32	30	1.68	20	0.97
35 to 44	12	2.02	12	2.17	20	3.19	12	1.81	35	1.73	25	1.11
45 to 54	6	1.38	8	2.06	5	1.89	4	1.05	11	1.08	9	0.71
55 to 64	4	2.50	3	1.47	5	1.74	6	2.39	2	0.53	3	0.59
Mean	10	0.90	8	0.74	13	1.30	7	0.71	19	0.67	14	0.42
Women												
18 to 24	44	6.01	26	2.87	30	6.07	22	3.69	40	2.74	33	1.71
25 to 34	81	6.13	53	3.54	46	4.36	34	2.66	82	2.80	63	1.68
35 to 44	41	3.58	31	2.98	21	3.19	28	2.16	66	2.32	49	1.44
45 to 54	13	2.17	19	2.38	12	2.83	13	2.38	18	1.26	16	0.91
55 to 64	15	3.81	16	2.91	6	1.96	10	2.61	4	0.75	8	0.81
Mean	40	2.16	30	1.41	26	1.89	23	1.20	45	1.03	37	0.65
Grand Mean	26	1.26	20	0.85	20	1.18	16	0.74	32	0.63	26	0.40

Appendix Table 4.10b: Minutes per day main activity childcare by survey, age and sex (18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	3	0.93	13	3.69	1	0.67	6	0.89	5	0.62
25 to 34	11	1.60	14	2.35	8	1.32	30	1.68	21	1.02
35 to 44	12	2.17	20	3.19	12	1.81	35	1.73	26	1.18
45 to 54	8	2.06	5	1.89	4	1.05	11	1.08	9	0.76
55 to 64	3	1.47	5	1.74	6	2.39	2	0.53	3	0.61
65 plus	3	1.17	1	0.59	3	1.39	1	0.25	2	0.38
Mean	7	0.64	11	1.11	7	0.64	16	0.57	13	0.38
Women										
18 to 24	24	2.62	27	5.49	22	3.48	37	2.49	31	1.63
25 to 34	53	3.54	46	4.36	34	2.66	82	2.80	62	1.74
35 to 44	31	2.98	21	3.19	28	2.16	66	2.32	50	1.53
45 to 54	19	2.38	12	2.83	13	2.38	18	1.26	16	0.97
55 to 64	16	2.91	6	1.96	10	2.61	4	0.75	7	0.82
65 plus	3	0.94	8	1.87	6	1.44	1	0.29	3	0.43
Mean	25	1.16	22	1.58	20	1.01	37	0.86	30	0.57
Grand mean	17	0.71	17	1.00	14	0.64	27	0.53	22	0.36

Appendix Table 4.11a: Minutes per day main activity childcare by survey, employment and sex (19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	10	0.92	7	0.73	13	1.51	7	0.74	20	0.73	15	0.45
Not employed	9	5.66	8	2.88	10	2.53	8	2.23	15	1.76	12	1.18
Mean	10	0.91	8	0.73	13	1.33	7	0.71	19	0.67	14	0.42
Women												
Employed	18	2.05	18	1.37	16	1.68	17	1.15	36	1.04	28	0.67
Not employed	62	3.59	45	2.59	42	4.12	41	3.09	67	2.51	55	1.44
Mean	40	2.17	30	1.41	26	1.91	23	1.21	45	1.03	37	0.66
Grand mean	26	1.27	20	0.85	20	1.20	16	0.74	32	0.63	26	0.40

Appendix Table 4.11b: Minutes per day main activity childcare by survey, employment and sex (18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	7	0.70	12	1.43	7	0.71	19	0.69	14	0.45
Not employed	5	1.49	6	1.43	6	1.41	8	0.93	7	0.65
Mean	7	0.64	11	1.13	6	0.64	16	0.57	13	0.38
Women										
Employed	17	1.29	15	1.59	16	1.11	35	1.00	27	0.67
Not employed	32	1.86	31	2.90	26	1.94	40	1.57	34	1.00
Mean	25	1.16	22	1.59	20	1.02	37	0.86	30	0.57
Grand mean	17	0.71	17	1.01	14	0.64	27	0.53	22	0.36

Appendix Table 4.12a: Minutes per day main activity childcare by survey, co-resident children and sex (19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	2	0.97	2	0.76	5	0.93	4	0.72	0	0.03	2	0.21
kids aged under 5	22	2.18	25	2.73	47	6.93	30	4.32	70	2.77	52	1.83
kids aged 5 to 17	9	1.37	6	0.88	12	2.06	14	1.99	30	1.46	21	0.87
Mean	10	0.90	8	0.74	13	1.30	7	0.73	19	0.67	14	0.42
Women												
no kids	7	1.53	7	1.16	12	1.61	9	1.02	0	0.01	4	0.34
kids aged under 5	108	5.62	86	4.49	107	9.18	86	5.65	145	3.32	123	2.32
kids aged 5 to 17	30	2.43	29	1.93	19	2.56	37	3.08	57	1.70	44	1.12
Mean	40	2.16	31	1.41	26	1.89	23	1.21	45	1.03	37	0.66
Grand mean	26	1.26	20	0.85	20	1.18	16	0.74	32	0.63	26	0.40

Appendix Table 4.12b: Minutes per day main activity childcare by survey, co-resident children and sex (18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	2	0.64	4	0.74	3	0.64	0	0.03	1	0.19
kids aged under 5	24	2.68	46	6.87	29	4.29	69	2.74	56	2.02
kids aged 5 to 17	6	0.87	12	1.93	13	1.92	29	1.38	21	0.90
Mean	7	0.64	11	1.11	6	0.65	16	0.57	13	0.38
Women										
no kids	5	0.82	11	1.27	8	0.83	0	0.03	4	0.27
kids aged under 5	84	4.42	107	9.18	86	5.62	144	3.29	123	2.47
kids aged 5 to 17	29	1.87	18	2.53	36	2.98	55	1.65	44	1.15
Mean	25	1.16	22	1.58	20	1.02	37	0.86	30	0.57
Grand mean	17	0.71	17	1.00	14	0.64	27	0.53	22	0.36

Appendix Table 4.13a: Minutes per day secondary activity childcare by survey, age and sex (19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	Se
18 to 24	12	3.45	6	1.80	4	2.15	0.00	0.00	51	4.96	25	2.32
25 to 34	10	2.32	11	1.84	15	2.93	0.00	0.00	135	5.61	72	3.07
35 to 44	11	2.25	15	3.27	18	3.64	0.00	0.00	168	5.96	97	3.64
45 to 54	7	1.63	11	2.73	3	1.56	0.00	0.00	72	4.39	44	2.68
55 to 64	4	2.51	6	3.14	7	2.49	0.00	0.00	29	3.75	18	2.13
Mean	9	1.08	10	1.08	11	1.33	0.00	0.00	102	2.48	57	1.40
Women												
18 to 24	21	3.87	26	3.77	13	3.19	0.00	0.00	165	8.32	83	4.20
25 to 34	56	6.09	47	3.58	30	3.92	0.00	0.00	289	7.11	150	4.13
35 to 44	34	4.47	41	4.14	17	2.59	0.00	0.00	241	6.38	137	3.96
45 to 54	9	2.24	23	3.02	7	2.16	0.00	0.00	93	5.05	55	2.92
55 to 64	6	2.73	12	3.22	3	1.43	0.00	0.00	35	3.70	21	2.06
Mean	26	2.00	31	1.63	16	1.46	0.00	0.00	173	3.02	96	1.71
Grand Mean	18	1.19	21	1.02	13	1.00	0.00	0.00	139	1.99	77	1.12

Appendix Table 4.13b: Minutes per day secondary activity childcare by survey, age and sex (18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	6	1.74	4	1.93	0.00	0.00	45	4.29	25	2.28
25 to 34	11	1.84	15	2.93	0.00	0.00	135	5.61	76	3.26
35 to 44	15	3.27	18	3.64	0.00	0.00	168	5.96	104	3.88
45 to 54	11	2.73	3	1.56	0.00	0.00	72	4.39	47	2.88
55 to 64	6	3.14	7	2.49	0.00	0.00	29	3.75	19	2.29
65plus	3	1.20	0	0.29	0.00	0.00	10	2.09	6	1.18
Mean	9	0.92	9	1.13	0.00	0.00	87	2.14	52	1.28
Women										
18 to 24	25	3.42	11	2.82	0.00	0.00	155	7.54	85	4.19
25 to 34	47	3.58	30	3.92	0.00	0.00	289	7.11	156	4.36
35 to 44	41	4.14	17	2.59	0.00	0.00	241	6.38	145	4.21
45 to 54	23	3.02	7	2.16	0.00	0.00	93	5.05	59	3.14
55 to 64	12	3.22	3	1.43	0.00	0.00	35	3.70	22	2.19
65plus	3	0.97	1	0.45	0.00	0.00	17	2.32	9	1.25
Mean	25	1.33	13	1.19	0.00	0.00	145	2.58	84	1.52
Grand mean	18	0.85	11	0.83	0.00	0.00	118	1.70	69	1.01

Appendix Table 4.14a: Minutes per day secondary activity childcare by survey, employment and sex (19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	9	1.12	10	1.08	11	1.48	0	0.00	103	2.66	57	1.50
Not employed	8	3.95	12	4.14	8	3.60	0	0.00	94	6.74	55	4.00
Mean	9	1.09	10	1.08	11	1.37	0	0.00	102	2.48	57	1.40
Women												
Employed	14	1.94	21	1.75	13	1.69	0	0.00	148	3.27	85	1.94
Not employed	39	3.45	43	2.91	21	2.75	0	0.00	242	6.60	121	3.39
Mean	27	2.01	31	1.63	16	1.48	0	0.00	173	3.02	96	1.71
Grand Mean	18	1.19	21	1.02	14	1.02	0	0.00	139	1.99	78	1.13

Appendix Table 4.14b: Minutes per day secondary activity childcare by survey, employment and sex (18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	9	1.03	11	1.40	0	0	98	2.53	59	1.54
Not employed	7	2.03	5	1.98	0	0	54	3.78	32	2.21
Mean	9	0.92	9	1.16	0	0	87	2.14	52	1.29
Women										
Employed	20	1.66	12	1.57	0	0	142	3.15	85	1.95
Not employed	30	2.05	14	1.87	0	0	151	4.41	84	2.44
Mean	25	1.34	13	1.21	0	0	145	2.58	85	1.53
Grand Mean	18	0.85	11	0.84	0	0	118	1.70	70	1.02

Appendix Table 4.15a: Minutes per day secondary activity childcare by survey, child co-residence and sex (19-64)

Child co-resident	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	2	0.70	1	0.40	4	1.26	0	0.00	13	1.26	8	0.68
kids aged under 5	16	2.48	17	2.52	45	6.94	0	0.00	272	7.57	164	5.20
kids aged 5 to 17	11	2.25	20	2.93	7	1.55	0	0.00	192	6.13	106	3.63
Mean	9	1.08	10	1.08	11	1.33	0	0.00	102	2.48	57	1.40
Women												
no kids	6	1.54	3	0.80	7	1.17	0	0.00	21	1.50	11	0.76
kids aged under 5	63	5.85	73	5.04	52	7.19	0	0.00	439	6.65	269	5.49
kids aged 5 to 17	25	2.91	43	3.00	20	2.85	0	0.00	269	6.09	153	3.81
Mean	26	2.00	31	1.63	16	1.46	0	0.00	173	3.02	96	1.71
Grand mean	18	1.19	21	1.02	13	1.00	0	0.00	139	1.99	78	1.13

Appendix Table 4.15b: Minutes per day secondary activity childcare by survey, child co-residence and sex (18-90+)

Child co-resident	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	1	0.31	4	0.99	0	0.00	12	1.04	7	0.59
kids aged under 5	16	2.47	44	6.88	0	0.00	269	7.50	184	5.70
kids aged 5 to 17	20	2.84	7	1.46	0	0.00	183	5.86	111	3.78
Mean	9	0.92	9	1.13	0	0.00	87	2.14	52	1.29
Women										
no kids	3	0.63	5	0.87	0	0.00	18	1.18	10	0.63
kids aged under 5	72	4.95	52	7.19	0	0.00	435	6.64	290	5.83
kids aged 5 to 17	42	2.91	19	2.70	0	0.00	260	5.95	159	3.97
Mean	25	1.34	13	1.19	0	0.00	145	2.58	85	1.53
Grand mean	18	0.85	11	0.83	0	0.00	118	1.70	70	1.02

Appendix Table 4.16a: Minutes per day adult care by survey, age and sex (19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	3	1.13	10	2.06	7	1.96	4	1.62	13	1.69	9	0.94
25 to 34	3	1.06	9	2.12	10	2.63	4	1.17	9	1.06	8	0.70
35 to 44	3	1.37	9	2.54	1	0.50	5	1.27	9	1.19	7	0.76
45 to 54	10	4.28	9	2.14	2	0.73	2	0.53	11	1.13	9	0.78
55 to 64	3	1.40	5	2.23	7	2.44	4	1.74	14	1.63	10	1.01
Mean	5	1.08	9	1.00	6	0.93	4	0.57	11	0.57	8	0.37
Women												
18 to 24	8	2.10	9	1.79	3	1.62	4	0.97	10	1.25	8	0.72
25 to 34	7	1.87	12	2.06	5	1.71	6	1.21	10	1.03	9	0.66
35 to 44	5	0.94	8	2.23	3	1.00	4	1.15	11	0.98	8	0.63
45 to 54	6	2.51	9	2.55	1	0.53	4	0.93	20	1.49	13	0.93
55 to 64	6	2.52	15	2.66	9	2.75	4	1.56	25	2.02	17	1.22
Mean	6	0.89	11	1.02	4	0.75	5	0.54	15	0.61	11	0.37
Grand mean	5	0.69	10	0.72	5	0.59	4	0.39	13	0.42	10	0.26

Appendix Table 4.16b: Minutes per day adult care by survey, age and sex (19-64)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	10	1.99	6	1.74	4	1.54	12	1.50	10	0.94
25 to 34	9	2.12	10	2.63	4	1.17	9	1.06	8	0.75
35 to 44	9	2.54	1	0.50	5	1.27	9	1.19	8	0.81
45 to 54	9	2.14	2	0.73	2	0.53	11	1.13	8	0.77
55 to 64	5	2.23	7	2.44	4	1.74	14	1.63	10	1.08
65plus	5	1.09	4	1.79	3	0.81	19	1.94	12	1.12
Mean	8	0.85	5	0.83	4	0.50	12	0.56	9	0.36
Women										
18 to 24	9	2	3	1	4	1	11	1	8	1
25 to 34	12	2	5	2	6	1	10	1	9	1
35 to 44	8	2	3	1	4	1	11	1	8	1
45 to 54	9	2.55	1	0.53	4	0.933	20	1.4919	14	0.979
55 to 64	15	2.663	9	2.75	4	1.563	25	2.0181	18	1.293
65plus	14	2.5	3	1.16	3	0.946	19	1.5793	13	0.956
Mean	11	0.933	4	0.64	4	0.469	16	0.5739	12	0.364
Grand mean	10	0.64	5	0.51	4	0.341	14	0.4011	10	0.258

Appendix Table 4.17a: Minutes per day adult care by survey, employment and sex (aged 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	5	1.12	8	1.03	5	0.92	4	0.62	9	0.56	7	0.36
Not employed	2	1.71	14	3.65	11	3.44	4	1.50	21	2.17	15	1.38
Mean	5	1.08	9	1.01	6	0.96	4	0.57	11	0.57	8	0.37
Women												
Employed	6	1.46	9	1.19	3	0.90	5	0.65	13	0.65	9	0.42
Not employed	6	1.05	14	1.76	6	1.35	5	0.97	21	1.41	14	0.75
Mean	6	0.90	11	1.02	4	0.76	5	0.54	15	0.61	11	0.37
Grand Mean	6	0.70	10	0.72	5	0.61	4	0.39	13	0.42	10	0.26

Appendix Table 4.17b: Minutes per day adult care by survey, employment and sex (aged 18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	8	0.97	5	0.88	4	0.59	9	0.56	8	0.38
Not employed	9	1.81	8	2.10	3	0.88	20	1.52	14	0.94
Mean	8	0.86	6	0.85	4	0.50	12	0.56	9	0.36
Women										
Employed	9	1.15	3	0.84	5	0.63	13	0.63	10	0.42
Not employed	13	1.40	5	1.00	4	0.70	21	1.10	14	0.65
Mean	11	0.92	4	0.65	4	0.47	16	0.57	11	0.36
Grand Mean	10	0.63	5	0.52	4	0.34	14	0.40	10	0.26

Appendix Table 4.18a: Minutes per day adult care by survey, co-resident children and sex (age 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	4	1.38	8	1.40	6	1.41	4	0.73	13	0.81	9	0.50
Kids aged under 5	3	1.13	12	2.71	7	2.44	1	0.65	8	1.17	7	0.82
Kids aged 5 to 17	6	2.68	8	1.64	4	1.05	3	0.99	8	1.07	7	0.69
Mean	5	1.08	9	1.01	6	0.93	4	0.58	11	0.57	8	0.37
Women												
no kids	7	1.76	13	1.54	5	1.06	5	0.59	19	0.98	13	0.55
Kids aged under 5	7	1.65	8	1.66	6	2.80	8	2.73	7	0.81	7	0.67
Kids aged 5 to 17	5	0.85	10	1.90	2	0.78	4	1.00	12	1.04	9	0.66
Mean	6	0.90	11	1.01	4	0.75	5	0.55	15	0.61	11	0.37
Grand mean	5	0.70	10	0.72	5	0.59	4	0.40	13	0.42	10	0.26

Appendix Table 4.18b: Minutes per day adult care by survey, co-resident children and sex (age 18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	7	1.07	6	1.17	4	0.61	14	0.75	10	0.47
Kids aged under 5	11	2.66	7	2.42	1	0.65	8	1.17	8	0.92
Kids aged 5 to 17	7	1.55	4	0.99	3	0.97	9	1.04	7	0.69
Mean	8	0.86	5	0.83	4	0.50	12	0.56	9	0.36
Women										
no kids	13	1.32	4	0.83	4	0.50	19	0.83	13	0.49
Kids aged under 5	8	1.62	6	2.80	8	2.69	7	0.79	7	0.70
Kids aged 5 to 17	9	1.83	2	0.74	4	0.97	13	1.07	10	0.72
Mean	11	0.93	4	0.64	4	0.48	16	0.57	12	0.36
Grand mean	10	0.64	5	0.51	4	0.35	14	0.40	10	0.26

Appendix Table 4.19a: Minutes per day voluntary work by survey, age and sex (aged 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	2	1.62	8	3.16	2	0.58	3	1.09	3	0.73	4	0.77
25 to 34	4	1.88	4	1.08	3	1.00	4	1.43	5	0.72	4	0.51
35 to 44	8	2.65	7	2.13	7	1.80	6	1.16	9	1.15	8	0.74
45 to 54	3	1.29	8	3.10	8	2.48	6	1.84	9	1.13	8	0.82
55 to 64	6	3.10	2	1.09	14	4.27	9	2.83	9	1.59	8	1.09
Mean	5	0.97	6	1.06	6	0.93	5	0.73	7	0.50	6	0.35
Women												
18 to 24	3	2.55	2	0.91	5	1.57	2	0.98	4	0.94	4	0.56
25 to 34	7	2.57	6	1.46	6	1.63	3	0.83	6	0.94	6	0.57
35 to 44	12	2.94	10	2.40	7	1.85	4	1.00	11	1.11	9	0.72
45 to 54	2	0.85	8	1.97	12	3.26	5	1.34	11	1.25	9	0.80
55 to 64	11	3.83	10	3.22	8	2.62	5	1.55	10	1.30	9	0.94
Mean	7	1.17	7	0.91	8	0.96	4	0.50	9	0.52	7	0.33
Grand mean	6	0.77	7	0.70	7	0.67	5	0.43	8	0.36	7	0.24

Appendix Table 4.19b: Minutes per day voluntary work by survey, age and sex (aged 18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	8	3.04	2	0.78	3	1.03	4	0.82	4	0.79
25 to 34	4	1.08	3	1.00	4	1.43	5	0.72	4	0.53
35 to 44	7	2.13	7	1.80	6	1.16	9	1.15	8	0.78
45 to 54	8	3.10	8	2.48	6	1.84	9	1.13	8	0.88
55 to 64	2	1.09	14	4.27	9	2.83	9	1.59	8	1.15
65plus	8	2.19	8	2.89	5	1.47	13	1.69	10	1.07
Mean	6	0.95	6	0.88	5	0.65	8	0.49	7	0.34
Women										
18 to 24	4	1.22	5	1	2	0.91	5	0.86	4	0.55
25 to 34	6	1.46	6	2	3	0.83	6	0.94	6	0.58
35 to 44	10	2.40	7	2	4	1.00	11	1.11	9	0.74
45 to 54	8	1.97	12	3.26	5	1.34	11	1.25	9	0.86
55 to 64	10	3.22	8	2.62	5	1.55	10	1.30	9	0.97
65plus	13	2.98	12	3.27	6	1.31	12	1.40	11	0.96
Mean	8	0.93	8	0.96	4	0.47	9	0.48	8	0.33
Grand mean	7	0.67	7	0.66	5	0.39	9	0.34	7	0.24

Appendix Table 4.20: Minutes per day voluntary work by survey and employment (aged 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Employment	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	5	0.83	4	0.59	7	0.78	5	0.50	7	0.37	6	0.25
Not employed	9	1.74	12	1.92	8	1.33	4	0.85	12	1.02	10	0.62
Mean	6	0.77	7	0.70	7	0.67	5	0.43	8	0.36	7	0.24

Appendix Table 4.21: Minutes per day voluntary work by survey and co-resident children (aged 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Co-resident children	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	5	1.28	4	0.79	7	0.94	5	0.56	7	0.48	6	0.31
Kids aged under 5	6	1.39	4	0.90	8	1.90	3	1.20	6	0.65	6	0.46
Kids aged 5 to 17	7	1.33	11	1.68	6	1.01	3	0.75	12	0.81	10	0.54
Mean	6	0.77	7	0.70	7	0.67	5	0.44	8	0.36	7	0.24

Appendix Table 4.22a: Minutes per day shopping by survey, age and sex (aged 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	22	3.68	18	1.72	22	3.24	18	2.29	24	1.84	22	1.07
25 to 34	24	2.76	20	2.20	27	3.37	20	1.88	26	1.37	24	0.92
35 to 44	30	3.63	15	2.09	36	4.82	23	2.26	24	1.18	24	0.94
45 to 54	25	3.06	20	2.83	22	3.85	20	2.34	24	1.19	23	0.92
55 to 64	33	5.09	20	2.62	25	4.00	27	3.47	29	1.80	28	1.30
Mean	26	1.60	19	1.02	27	1.80	22	1.07	25	0.63	24	0.45
Women												
18 to 24	33	3.82	36	3.12	33	4.13	39	3.76	36	2.02	36	1.40
25 to 34	45	4.19	36	2.60	34	3.00	35	2.48	36	1.48	36	1.05
35 to 44	43	3.98	40	3.56	43	5.51	42	2.76	41	1.43	41	1.15
45 to 54	49	4.59	42	2.89	37	4.53	42	2.85	41	1.79	42	1.26
55 to 64	37	3.99	39	3.59	38	4.31	49	4.21	46	2.19	44	1.54
Mean	42	1.89	38	1.39	37	1.94	41	1.37	40	0.78	40	0.56
Grand mean	35	1.26	29	0.89	32	1.33	32	0.90	33	0.51	32	0.37

Appendix Table 4.22b: Minutes per day shopping by survey, age and sex (aged 18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	18	1.69	22	3.03	18	2.18	24	1.69	21	1.06
25 to 34	20	2.20	27	3.37	20	1.88	26	1.37	24	0.96
35 to 44	15	2.09	36	4.82	23	2.26	24	1.18	24	0.98
45 to 54	20	2.83	22	3.85	20	2.34	24	1.19	23	0.97
55 to 64	20	2.62	25	4.00	27	3.47	29	1.80	27	1.35
65plus	28	2.86	30	3.75	35	2.95	37	1.95	35	1.36
Mean	20	0.97	28	1.61	23	1.01	27	0.60	25	0.45
Women										
18 to 24	35	2.96	30	3.71	40	3.67	37	1.91	37	1.40
25 to 34	36	2.60	34	3.00	35	2.48	36	1.48	36	1.08
35 to 44	40	3.56	43	5.51	42	2.76	41	1.43	41	1.20
45 to 54	42	2.89	37	4.53	42	2.85	41	1.79	41	1.31
55 to 64	39	3.59	38	4.31	49	4.21	46	2.19	45	1.63
65plus	35	2.95	34	3.27	41	2.73	39	1.62	39	1.20
Mean	38	1.25	36	1.67	41	1.22	40	0.70	40	0.52
Grand mean	30	0.82	32	1.17	33	0.82	34	0.47	33	0.35

Appendix Table 4.23: Minutes per day shopping by survey, employment and sex (aged 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	26	1.63	17	1.07	28	2.08	20	1.12	24	0.65	23	0.47
Not employed	38	10.64	29	3.21	25	3.54	30	3.20	35	2.02	33	1.43
Mean	26	1.61	19	1.02	27	1.83	22	1.07	25	0.63	24	0.45
Women												
Employed	38	2.56	32	1.70	31	2.05	35	1.48	37	0.88	36	0.64
Not employed	46	2.81	46	2.30	46	3.92	55	3.09	49	1.64	49	1.11
Mean	42	1.90	38	1.40	37	1.96	41	1.38	40	0.78	40	0.56
Grand mean	35	1.27	29	0.90	32	1.35	32	0.90	33	0.51	32	0.37

Appendix Table 4.24: Minutes per day shopping by survey, child co-residence and sex (aged 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	Se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
no kids	28	2.70	19	1.45	24	2.03	22	1.21	26	0.83	24	0.59
kids aged under 5	22	2.36	23	2.58	35	5.33	20	3.76	26	1.52	25	1.11
kids aged 5 to 17	29	3.10	16	1.69	30	4.05	22	2.95	24	1.26	23	0.94
Mean	26	1.60	19	1.02	27	1.80	22	1.09	25	0.63	24	0.45
Women												
no kids	38	2.72	40	2.12	34	2.27	40	1.67	40	1.16	40	0.79
kids aged under 5	37	3.16	37	3.06	51	8.46	43	4.23	39	1.57	39	1.27
kids aged 5 to 17	51	3.90	37	2.30	37	3.20	44	3.16	40	1.38	41	1.03
Mean	42	1.89	38	1.39	37	1.94	41	1.39	40	0.78	40	0.56
Grand mean	35	1.26	29	0.90	32	1.33	32	0.91	33	0.51	32	0.37

Appendix Table 4.25a: Minutes per day travel by age, sex and survey (aged 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	92	5.13	108	4.36	99	6.43	93	3.99	94	2.64	97	1.79
25 to 34	88	4.13	95	3.46	96	4.47	97	3.40	90	1.92	93	1.37
35 to 44	90	3.77	87	4.10	99	5.10	96	3.68	92	2.04	93	1.50
45 to 54	92	4.26	90	4.72	95	6.25	91	4.02	89	1.99	90	1.53
55 to 64	82	4.75	81	4.90	76	5.00	90	5.14	81	2.57	82	1.86
Mean	89	1.95	94	1.93	94	2.41	94	1.78	89	0.98	91	0.71
Women												
18 to 24	76	4.46	87	3.84	85	4.69	96	4.22	87	2.27	88	1.60
25 to 34	69	4.18	75	2.84	92	3.99	89	2.67	82	1.69	83	1.18
35 to 44	67	3.12	85	4.59	89	4.61	85	2.83	87	1.65	85	1.24
45 to 54	69	3.80	76	3.39	79	5.19	85	3.04	87	2.11	83	1.44
55 to 64	67	4.07	59	3.45	73	4.87	83	4.58	83	2.54	77	1.73
Mean	69	1.74	76	1.60	85	2.08	87	1.47	85	0.90	83	0.63
Grand mean	79	1.32	85	1.25	89	1.59	90	1.14	87	0.66	87	0.47

Appendix Table 4.25b: Minutes per day travel by age, sex (aged 18-90+)

	1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
18 to 24	106	4.25	103	7.49	95	4.10	93	2.41	97	1.84
25 to 34	95	3.46	96	4.47	97	3.40	90	1.92	93	1.44
35 to 44	87	4.10	99	5.10	96	3.68	92	2.04	93	1.59
45 to 54	90	4.72	95	6.25	91	4.02	89	1.99	90	1.62
55 to 64	81	4.90	76	5.00	90	5.14	81	2.57	82	1.97
65plus	63	4.22	67	5.30	79	3.78	75	2.18	74	1.65
Mean	89	1.76	91	2.32	92	1.62	88	0.89	89	0.68
Women										
18 to 24	89	3.61	85	4.44	95	4.03	89	2.14	90	1.59
25 to 34	75	2.84	92	3.99	89	2.67	82	1.69	83	1.23
35 to 44	85	4.59	89	4.61	85	2.83	87	1.65	87	1.31
45 to 54	76	3.39	79	5.19	85	3.04	87	2.11	85	1.52
55 to 64	59	3.45	73	4.87	83	4.58	83	2.54	78	1.83
65plus	57	3.89	62	4.09	65	3.28	64	1.88	63	1.44
Mean	73	1.49	81	1.86	83	1.34	82	0.81	81	0.60
Grand mean	80	1.15	86	1.47	87	1.04	85	0.60	85	0.45

Appendix Table 4.26: Minutes per day travel by sex, employment and survey (aged 19-64)

	1960s		1970s		1980s		1990s		2003		Total	
Men	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se	Mean	se
Employed	89	1.92	94	2.01	96	2.62	95	1.91	91	1.02	92	0.74
Not employed	99	20.25	102	6.42	82	6.82	87	4.96	81	3.06	85	2.27
Mean	89	1.96	95	1.94	94	2.47	94	1.78	89	0.98	91	0.71
Women												
Employed	76	2.32	80	2.02	92	2.66	90	1.67	88	1.04	87	0.75
Not employed	63	2.58	71	2.60	73	3.31	80	3.01	78	1.83	75	1.16
Mean	69	1.75	76	1.61	85	2.09	87	1.47	85	0.90	83	0.63
Grand mean	79	1.32	85	1.26	89	1.61	90	1.14	87	0.66	87	0.47

Appendix Table 4.27: Minutes per day travel by sex, child co-residence and survey (aged 19-64)

Child co-residence	**1960s**		**1970s**		**1980s**		**1990s**		**2003**		**Total**	
Men	Mean	se	Mean	se	Mean	se	Mean	Se	Mean	se	Mean	se
no kids	90	3.19	95	2.84	92	3.11	94	2.03	88	1.29	90	0.94
kids aged under 5	83	3.52	91	3.87	94	6.10	90	6.48	89	2.23	89	1.62
kids aged 5 to 17	93	3.43	95	3.53	97	4.85	96	4.61	94	2.02	95	1.45
Mean	89	1.95	94	1.93	94	2.41	94	1.79	89	0.98	91	0.71
Women												
no kids	69	2.63	75	2.53	85	2.65	88	1.85	85	1.38	84	0.92
kids aged under 5	60	3.49	70	3.49	75	5.34	84	3.87	79	1.68	76	1.29
kids aged 5 to 17	76	3.05	81	2.55	90	4.20	89	3.08	89	1.55	87	1.11
Mean	69	1.74	76	1.61	85	2.08	87	1.48	85	0.90	83	0.63
Grand mean	79	1.32	85	1.25	89	1.59	90	1.15	87	0.66	87	0.47