Time, through the Lifecourse, in the Family

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BHPS data are available from the Data Archive at the University of Essex
http://www.data-archive.ac.uk

Further information about the BHPS and other longitudinal surveys can be obtained by telephoning +44 (0) 1206 873543.

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ABSTRACT

Time, through the Lifecourse, in the Family

This paper discusses the way that individuals' time budgets are influenced by changes in their family status and circumstances. We sometimes associate life course changes in time use patterns, in an unconsidered manner, with chronological ageing. But is it really age itself, or the changing material (particularly family) circumstances associated with ageing, that cause these changes? The ideal approach to answering this question would be a household panel study large enough to provide sufficient instances of the various relevant changes in material circumstances, to model their temporal consequences. However the only available time-diary panel study is too small for this purpose. So this study "fuses" the time diary evidence with evidence from a much larger and long-running national household panel study, using a number of questionnaire items highly correlated with time allocation, and present in both data sets. It uses the combined data set to show how time use is affected by changes in family statuses through the life course. It demonstrates in particular that successive stages in the "family cycle " have strong effects in increasing gendered specialisation in the distribution of paid and unpaid work.

NON-TECHNICAL SUMMARY

Time diaries are the preferred method for collecting evidence of time use patterns. But it is not practicable (because of both financial cost and respondent burden) to collect the large time diary samples needed to investigate the effects of family transitions, on a panel survey basis. The alternative is data fusion. We have a time-diary dataset—the Home on-Line (HoL) study—which shares the same questionnaire-derived time-use predictor variables with a large long-term panel study (the BHPS). So we use regression of the predictors on the time diary data in HoL to impute time use in BHPS by multiplying the resulting regression coefficients with the same predictor variables in the BHPS. What emerges is in effect a calibrated index of time-use patterns based on BHPS questionnaire items.

We have thus been able to use real "longitudinal" evidence—repeated measurements of the same subjects—to estimate how time-use patterns change with family transitions such as partnership formation, childbirth and divorce..

It emerges that:

- there is relatively slow change in time allocation patterns if family status is unchanged;
- the largest changes seem to occur during the two years surrounding a family transition;
- and family transition effects are in general larger for younger people than for older.

Gender differences increase through the family cycle, with small differences in paid work before partnership formation, and increasing specialisation into "traditional" roles—men in paid work, women in unpaid—after childbirth. Within broad age-categories, what might appear as continuous age-related changes, can alternatively be interpreted as consequences of family status changes.

Time, through the Lifecourse, in the Family

JONATHAN GERSHUNY

TIME AND THE ACCUMULATION OF "CAPITALS"

How we spend our time—our "time budget"—is a crucial determinant of our position in the social structure. This paper discusses the way that individuals' time budgets are in turn influenced by changes in their family status and circumstances. It relies on data from a nationally sampled time-diary study and from a national household panel study. It use a simple "data fusion" technique to combine these. And it uses the combined data set to show how time use is affected by changes in family statuses through the lifecourse.

Time (as we know from sociologists from Adams (1990) to Zerubavel (1982)) is made, a social product. All of human life relates itself to rhythms derived from more-or-less regular "time-givers". There are both natural and artificial time-givers: constellations, the sun and moon, church clocks, factory whistles, television programmes, family rituals. The different time-givers are embodied in different structures of authority, domination, or reciprocation, producing a mixture of different time structures through which each individual must navigate during the day. And each person experiences the passage of time differentially according to context and circumstances, whether with an employer or with a lover, in flight from a predator, or in a complex collaboration with a co-worker. But notwithstanding the multiplicity of social times, and of the complexity of individuals' experiences of them, it would be absurd to deny the existence of a single physicists time, counted as, for example, oscillations of a pendulum or of a caesium crystal. Time of this sort is very strongly socially

sanctioned, in the sense that any observer denying the regularity of the pendulum would be, in effect, also denying the whole of that body of scientific knowledge that underlies the last 300 years of world economic development. It would be perverse to consider this clock time as anything other than "objective time".

This chapter is not however about "objective time" itself but about the durations of various activities measured against its passage. We spend just so much time in work, in play, asleep, eating – what follows concerns how these activities vary through the life-course, and the consequences of this variation for people's acquisition of social positional characteristics.

The macro-sociological view summarised above sees time as produced by societies. But in this chapter we reverse the causal direction. In a micro-sociological context, individuals can be seen, in a recursive manner, as being produced by their own time allocation. We now (following the discussions in Bourdieu's **Distinction**), think of societies as structured by the distribution of different sorts of embodied "capitals" (the metaphor is perhaps inappropriate, we shall return to this in a moment)—in effect aggregated past time devoted to particular sorts of activity, congealed or *cumulated experience*—to constitute various sorts of skills or capabilities.

The sociological legacy of 19th century political economy is a view of society as structured by relationships of individuals and households to physical or financial capital. The time of individuals was located partly in the sphere of production (ie waged work) in which this capital operated directly, and partly in the sphere of reproduction (all other sorts of time). The patterns of domination associated with the ownership of capital in the production sphere were considered to carry over into consumption, particularly through the differentiation of gender

roles, with men located mainly in the production sector interacting in a primary way with the structures of capital, and women located mainly in the reproductive sphere interacting with capital only indirectly through their family relationships with men.

Some remnant of this view remains, but in general the approach now seems inappropriate. We now have an alternative, fitting better what we know of the 21st century, across much of the richest parts of the world. Just as the old view took social structuration as a product of a single sort of resource, we may now think, in a Bourdovian manner, of multiple sorts of resource which in different combinations give different levels and qualities of access to the various institutions – and hence the different sorts of experience – afforded by our societies. We have various skills in different sorts of consumption and organisational participation – we play football, we organise social events for the synagogue or church or mosque, we cook food and give dinner parties, we listen to music. All of these activities give us different sorts of satisfaction, and different degrees of social status, depending on how fully and effectively we are able to participate in them. And in turn the effectiveness of these sorts of participation, and the extent of our engagement within the relevant institutions, depends in large part on the context, frequency and duration of our previous engagement in these activities. Our past experiences—or at least some of them (since others simply evaporate, and have no further significance)—progressively congeal or cumulate to form personal resources, or capabilities. These congealed capabilities, all outcomes of our past time-budgets, are what Bourdieu called embodied "capitals".

"Capitals" in this sense fall into a wide range of different categories, classified both by their origin—eg deriving from the formal educational system, or informally from the practices of the individual's household-of-origin—or by their application—social, cultural or whatever.

Indeed, it is the indefinite range and wide variety of these that makes the term "capitals" less than optimally useful for sociological purposes. But the key insight from this line of argument, is that access to life-experiences is gained by combining various of these capabilities with each other, and with a distinct form of capability that goes under the misleadingly general-sounding category of "human capital"[1] – which describes the set of very specific skills which may be deployed within the labour market to get paid work and earn money. Human capital derives partly from experiences gained in the household-of-origin, partly from participation in the educational system, and finally from previous participation in paid work activities. Having a particular family and educational background, we get our first jobs, or arrange self-employment; subsequently, our record of performance in the labour market context enables advancement (or otherwise) which in turn adds to our work record. Potential employers have requirements, which may be at one extreme strictly functional—evidence of diligence, skill and specific knowledge—or at the other merely symbolic and related to abstract principles—such as a requirement for fairness—applied to the selection process. "Human capital" is the market valuation that emerges in the narrowly economic context of the distribution of these employer requirements, set against the distribution of relevant characteristics across the labour force.

Most social experiences require the combination of other embodied capitals, other personal resources of specific capabilities, with money payments which derive from human capital (or from wealth in the form of pensions, income from investments, transfer payment rights, which in turn often derive from the deployment of human capital). To this extent—only—our

[1] Economists led the discussion of these issues. Becker (1964) and Mincer and Polachek (1974) used the term "human capital" with this specific reference to the labour market. The same term is sometimes used in casual sociological discussions of what is referred to here "embodied capital". It

21st century account corresponds to its 19th century precursor. Labour income (now just one, though still an important one, of the elements in the money budgets of the general population) is a partial determinant—alongside the other sorts of capabilities—of the extent of participation in each of the activities of the society. But whereas the other capabilities are relatively specific to particular activities (ie sporting skills to the sports participation, cookery skills to the dinner parties and so on), human capital deployed to produce money income has a direct or indirect influence on every one of these activities. So the old "dominance of the sphere of production" corresponds to the crucially important impact of this narrow category of human capital on life-chances.

Time allocation is thus central to the processes of social structuration. Differentiation of life chances is a function of the various accumulated capabilities that give access to various leisure, consumption, sociable experiences. And our access to all or most of these different sorts of experiences have a common link to the accumulation of one specific class of capability, economically salient human capital. So, to understand differentiation of life-chances, it is necessary to investigate the processes through which time allocation patterns are determined, and to be particularly concerned with those processes through which human capital accumulates. There is very little existing literature on this topic and this chapter, rather than providing an overview of an existing body of research, is setting out an agenda for the future.

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seems appropriate to follow Coleman (1988) here, who used the term in the economists' sense, but we may hope that a more satisfactory terminology emerges.

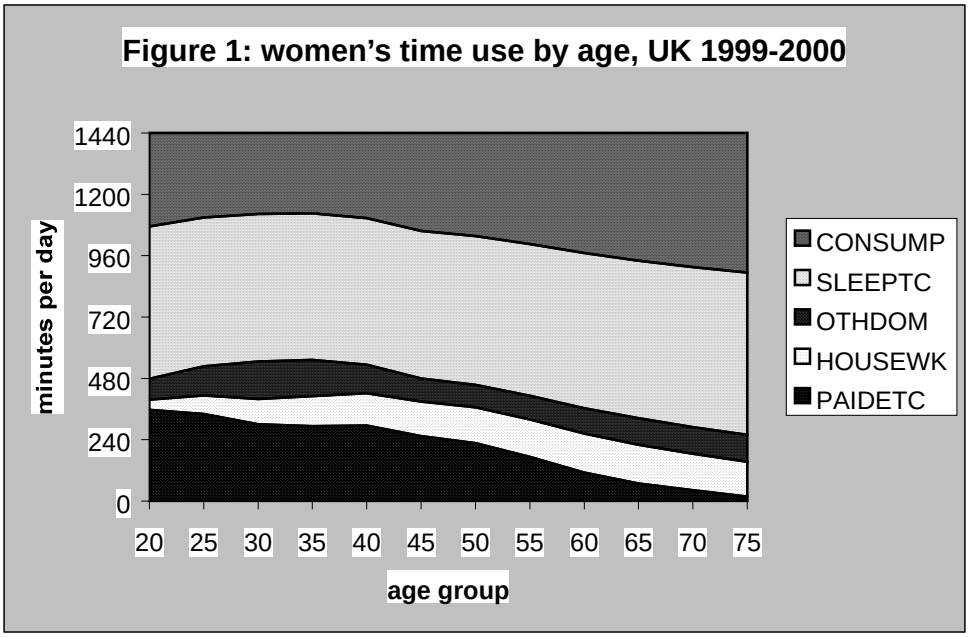
The coverage of this chapter is limited. In what follows there is no discussion of processes of intergenerational inheritance and childhood socialisation. There is no discussion of the accumulation of specific forms of cultural capacity through participation in particular leisure activities, no discussion of the formation of networks of acquaintance, familiarity and obligation that is the subject of social capital. Instead the focus is on empirical evidence of the operation of the single crucial impact of family processes through the adult life-course, in differentiating individuals' access to the opportunities for accumulating labour-market related "human capital"—and hence determining future life chances—between men and women.

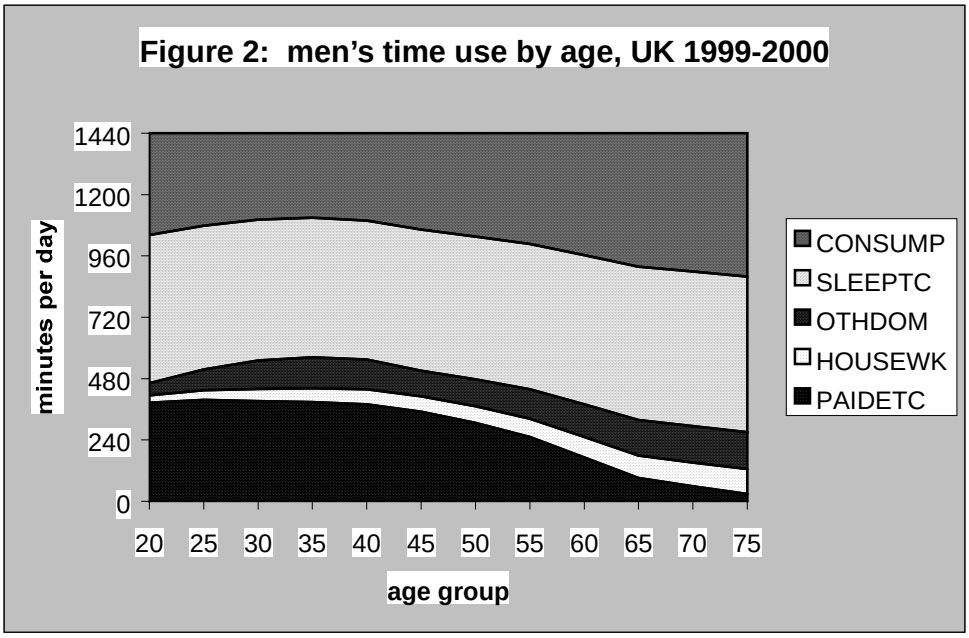
What we do determines who we become. There are regularities, in the allocation of time between various broad categories of time use—paid work, unpaid work, sleep and consumption time[2]—that are clearly related to current family circumstances, and to what we might think of as distinct stages in various cycles of family life. Differential specialisation of individuals at one life-stage, in one or other of the tasks, has implications for their future options for participation in all of them. And in particular: differential levels of specialisation in the different sorts of work (paid and unpaid) within households, implies also differential rates of accumulation of human capital, and hence—of particular importance in a society in which household fission is the norm rather than the exception—differentiation in life chances. This chapter, therefore, focuses on the evidence of the relationship between family circumstances, and the allocation of time among the general categories of time use within the household.

[2] This corresponds precisely to Dagfin Aas' (1970) classification of four distinct time use categories: contracted (paid work), committed (unpaid work), necessary (sleep and personal care), and discretionary.

THE PROBLEM: LONGITUDINAL EVIDENCE

The conventional approach to studying time use through the life-course, considers time use by age.





Figures 1 and 2 are drawn from a large time diary study (this sort of study is sometime alternatively described as a "time budget" survey). In such a survey a large random sample of people are asked to complete a special questionnaire, and then to keep a diary detailing the continuous sequence of all activities, including their start and finish times, normally for a single day, but in the case of various British studies, including the Home-on-Line study ("HoL", see Anderson et al 2001) used here, seven consecutive days. The approximately 1400 diary weeks from two waves of the HoL study form the basis for the time-use estimates in this chapter (more about the HoL survey is to be found in Appendix 1).

Clear, smooth, regular patterns of change in time-use through the life-course, are what emerge from these two figures. Paid work diminishes for women pretty continuously from youth to old age, increasing at first for men then again declining from their mid-thirties. Housework and other unpaid domestic work increases sharply to a maximum for women between the ages of 25 and 35; the increases are more gradual for men but continue throughout most of the life-course. Leisure/consumption time reaches a minimum for both sexes in their mid-30s, and for both, increases steadily thereafter.

Or at least, these changes are what *seem* to emerge from the pictures. But if we think more carefully about them, we come to a rather different conclusion. They are drawn on the basis of a national survey conducted during 1999 and 2000. And they do not, in fact, tell us anything about *change* at all. They just tell us about *difference* between people of different ages. What we have presented here are "cross-sectional" data which allow us to compare different sorts of people, but never to detect change. In her conclusion to what is perhaps the

only international comparative study of women's and men's time use over the life cycle, Lingsom (1995) wrote:

> "…in my opinion, the most serious shortcoming of the currently available data is that we cannot study transitions in the family cycle directly. The analysis presented here suggests that the stage reached in the family cycle is more important than age for understanding women's time use. This implies that our interest should be in the longitudinal analysis of the family cycle…"
>
> Lingsom (1995: p. 71)

There are two distinct issues of principle. *First*, people of different ages have lived through different historical eras, and have had different life experiences: people aged thirty in 2000 are, as a result, in some specific ways essentially *different* from people who were aged fifty in 2000, whose thirtieth year was in 1980. The cross-sectional approach ignores this. The *second* point is that age-change itself may not be the operative element: in fact, when we control for other circumstances, it appears that across a wide age-range, even apparently physiologically limited activities are not strongly related to age. (So for example, Fisher 2002 shows that Britons in their 60s devote more time to sports participation and walking than do those in their 20s.) In the case of Figures 1 and 2, the age variable may merely act as a proxy for other sorts of changes *associated with* age. The most important of these prior causal elements associated with age, is family status. What we see, in the first two figures may be, in fact, not the effect of people's ***ages***, but of their family ***stages.***

The first of the two principled objections to longitudinal interpretations from cross-sectional evidence is undoubtedly important. The correct response to it, is the application of "pseudo-cohort analysis", in which cross-sectional studies from successive historical eras are

compared, following the same birth cohorts. Thus, a group aged 10 to 20 in the 1960 survey would be 20 to 30 in the 1970 survey and 30-40 in the 1980. Following the same group through successive surveys gives a genuine picture of life course change. There is in fact time-diary data to that would allow that sort of analysis in many countries (evidence of this sort from US, Canada, Netherlands, Finland among others is discussed in my book Changing Times: Gershuny 2000) – but historical data was not collected on a very regular basis and the available evidence (with the exception of that for the Netherlands) is not entirely satisfactory for the purpose of this sort of analysis.

In this chapter however, I shall simply ignore what is the evident fact that societies change, put the first objection aside, and take cross-sectional differences as a proxy for historical ones, in what Joshi and Davies (2002) call a "time warp". The focus will be on the second: on the effects of family status, and particularly on what Lingsom termed "transitions in the family cycle"—observations of what happens when particular individuals change from one family status to another. It is, after all, only by observing what happens to someone's time use when family circumstances change, that we can be sure that the shifts in time use relate specifically to the change in family circumstance, and not to some other characteristic of that same individual (such as the nature of her/his job, or ethnicity, or a response to a current fashion).

For this sort of analysis we need genuinely longitudinal data, repeated measurements of the same variables for the same respondent. The HoL Time Use study itself is a panel study with three annual waves of interviews and diary collection (for reasons explained in a moment, we do not however use it as a panel). In this chapter I use, as the basis for the exploration of family transitions, the much larger British Household Panel Study (Taylor et al 2002) which

involved interviews with all members of an initial 5000 households, and currently provides 10 annual waves of data (the BHPS is introduced in little more detail in Appendix 1).

The focus on the family-related changes in time use produces a major statistical problem: the *interesting* family transitions for the purpose of studying the relationship of family conditions to individuals' time use, are also *rare* ones. Consider just the four distinct family statuses in Table 1.

Table 1: Family status distributions, BHPS adults 1994-2000
balanced sample waves 4-10

%	1994	1995	1996	1997	1998	1999	2000
no partner, no co-resident child	32.3	31.2	30.6	30.2	29.8	29.6	29.6
partner, no co-resident child	41.6	42.8	43.7	44.2	44.8	45.6	45.5
partner, co-resident child(ren)	23.0	22.7	22.7	22.3	22.4	21.8	21.9
no partner, co-resident child(ren)	3.1	3.3	3.0	3.2	3.0	2.9	3.0

This is a "balanced sample" in which the same individuals appear in each of the waves (we start with wave 4 because some of the required variables were not collected in earlier waves). Over the seven years we observe them, the BHPS respondents get, of course, seven years older, and their family status change accordingly. Fewer are partnered, at the beginning of the period than at the end, fewer co-reside with their own child at the end than at the beginning of the period. Notice here that the changes are small. It is important to remember that these are "net" changes (ie change at aggregate, not individual level). Part of the reason that in net terms fewer than 3% of the respondents move away from the "no partner no child" status is, as well as gaining partners and children, people also frequently lose partners through divorce

or death, and their children leave home. But it is also the case that not many of these transitions actually happen in any given year.

To investigate the rate at which these events occur in the population, we must use the panel **as** a panel. There are, including the 4 no-change "major diagonals", 16 possible transitions among these four states.

Table 2: Year-on-year occurrence of family transitions in BHPS 1994-2000
% of all pairs of years, pooled pairs of waves in balanced sample waves 4-10

	men				Women			
age group	20-40	41-60	>60	N	20-40	41-60	>60	N
joined partner	3	1		324	3	1		325
single->partner + kid	1			87				18
keep partner,have kid	3	1		252	2			249
have kid, no partner				6				27
lose partner, keep kid				22	2			184
keep partner, lose kid	1	3		283	1	3		308
lose partner, no kid	1	1	2	176	1	1	2	252
lose kid and partner	1			87				14
keep kid,gain partner				8	1			149
single parent→no kid				17		1		57
Total, any change	10	6	2	1262	10	6	2	1583
stay single	33	12	22	4204	19	15	53	5651
stay partner/no kid	19	63	75	8429	16	57	45	8086
stay partnered+kid	38	18	1	4214	46	18		5583
stay single parent		1		75	8	3		988
other				2				9
	100	100	100		99	99	100	
N	7849	6544	3793	18186	9283	7503	5114	21900

So as to get sufficiently large numbers, we adopt the frequently-used panel analysis technique of "pooling" pairs of successive years—adding pairs of years from the same person into the same file—so that in the resulting "pooled file" seven successive observations of the same respondent will appear as six separate pair-of-year cases. This technique allows us to work as if we are using much bigger cross-sectional data sets. Table 2 and most of what follows is

based on a file of just over 40,000 pooled cases. We see that, from one year to the nrxt, only 10% of the younger, 6% of middle-age-group, 2% of older people have *any* changes between the four broad family statuses. Despite the prevalence of family fission, most of these changes are on the what we might think of as the "main line" of stable partnership formation, followed by first child born within that partnership. Of the 10% of younger respondents who have one of these family changes over any pair of years, more than half—3% from single to partner, 3% having children in partnerships—lie on this main line. Among the middle-age group, around half of all the family transitions consist of grown-up children leaving home, again an event on the "main line". Among the older virtually all of the events are the loss of a partner. The prevalence of main-line events, means that some transitions are just too rare to study in general-purpose samples. So, for example, fewer than half of one percent of younger women move in successive years from having no partner to single parenthood – producing a barely viable cell-size for analysis even in a sample of over 9000 young women. Very large data sets are clearly needed even to study the effects of even the least infrequent family transitions.

But the time-diary studies that provide the good time use evidence are very expensive for researchers and onerous for respondents. It is difficult to produce time diary data within a panel study framework, since the diary-keeping activity is so burdensome, and we suspect that only rather special sorts of people might maintain this activity over extended periods of time. In fact the HoL study has a strong panel element, with around 1200 pairs of diaries kept in successive years. But this is designed for a different purpose—estimation of time-use elasticities, exploring for example the time-use consequences of increased time devoted to internet use, a relatively widespread phenomenon—and HoL's small scale means that it is not, in itself, appropriate for investigating the rare family transition events. Hence we have a

requirement for *data fusion*: finding a way of attaching the evidence from the HoL diary study to the BHPS.

TIME-USE CONSEQUENCES OF STATUS TRANSITIONS

data fusion

Data fusion comes perilously close to getting something for nothing—without ever overstepping the boundary of good research practice. The regression approach to data fusion relies on identifying, in two separate surveys, identical good predictors of some variable or variables that occur in only one of the surveys. Regression coefficients derived from the "donor" survey with both the predictor and the target variables, can be combined with the predictor variables in the "recipient" survey, to estimate the target variable.

The HoL diary panel study was in fact designed by the same research team as is responsible for the BHPS, with exactly such a data fusion exercise in mind. The BHPS carries (from wave 4, in 1994) a number of potential predictors of time use. There are "stylised estimate" questions about normal weekly hours of paid and domestic work, and questions about participation in, and the distribution of, various unpaid work tasks within the household[3]. The HoL study also carried these variables, in most case using the same question wording (the exception is that BHPS questions on paid work are more detailed). The imputed time-use values in the BHPS produced by fusion correspond well to the diary data in the HoL study (see Appendix 2). It is these imputed time-use estimates that we use in what follows.

[3] Hoffman (1981) and Niemi (1987) argue that these stylised estimates are subject to systematic biases (though Jacobs 1998 disagrees); the regression based imputation will have the effect of reducing biases.

Activities by age by family transition – the "main line"

In Figures 1 and 2 we looked just at age. But we need, if we are to tell the whole story, to find some method of combining age with the family transition variables to show the sequence of time use patterns that are experienced through the life-course….without drowning in an uninterpretable sea of numbers! One way of doing this is to consider, for men and for women in separate age groups, changing patterns of time-use on the "main line" through the traditional family formation sequence. Then (in the following section) we can turn to consider some of the alternative turnings off the main drag.

Table 3 shows the evolution of paid work through the traditional family formation stage. The table shows the mean time use in each of the separate pairs of years for each of the transitions. Where there is no change, both the first and the second years are included, to indicate the degree of annual change in time use that is associated with remaining in a given family situation. Where there is a family status transition, we have the patterns of time use in the year before, and in the year after, to indicate the change in time-use that may be attributed to it.

Table 3: paid work

mins/day	stay single		acquire partner		stay partnered		with partner, acquire child		Stay partner + child		Stay partnered, child leaves	
	yr 1	yr 2	before	after	yr 1	yr 2	before	after	yr 1	yr 2	before	after
20-40												
women	365	374	382	370	367	363	354	289	261	264	286	292
men	377	383	405	392	398	397	400	380	388	389	399	380
41-60												
women	249	242	266	240	216	208	206	200	255	251	262	239
men	300	295	318	317	303	293	330	324	370	364	353	342
60+												
women	40	35	63	55	56	49			71	65	86	102
men	61	56	65	52	86	76			73	71	150	143

So, in the case of paid work we see, for younger people who remain single, a small, questionably significant, annual increase in work time for both sexes, and not much difference between the sexes; there are similar small declines in work time for the two older groups. Young people acquiring partners reduce their paid work time, as do middle-aged women, though not middle aged men. Young people who remain in partnerships do not change their paid work time in any consistent way. We might note, however that these small changes, do sum to what looks like a progressive change (or selection process), such that those young women in partnerships who then choose to have children (looking at the “before acquiring a child” column), do seem to have substantially less paid work than young single women., while younger men in partnerships who are just about to acquire a child seem to have substantially more paid work than young single men.

The big break, however, occurs at the acquisition of a child. Among the youngest group, both the new fathers and the new mothers reduce their work time. But the mothers’ reduction is more than three times as large as the fathers’. And the mothers’ reduction continues, as they remain with their partners and children (partly as a result of acquiring further children), while

by contrast, the fathers' paid work time returns, in subsequent years, to something like its pre-birth level. Even after the children leave home, even among the youngest group of women, paid work time hardly increases. At the start of the "main sequence" for young people, paid work time differed between men and women by hardly 3%; by the end of this phase, women do 30% less paid work. For middle-age-group men with partners and co-resident children, paid work time declines by around five minutes per day each year, and women continue to have just over two thirds of men's total of paid work.

Note that the annual time-use changes for those in static family circumstances are generally small (though of course, a regular decline of only 3 minutes per day per year, cumulates to an hour's reduction if maintained continuously over two decades). And by contrast, the single-year working-time changes associated with the family status transitions are generally much more substantial, at least for women. There are, plainly, age effects, as we see by comparing the 20-40 age group single women with single women in the 41-60 age group. But much of this age-related difference in fact reflects change in the middle-age-group women's lives that occurred during previous family states, in partnerships which are now ended, and with children who have left home.

Patterns of change in routine housework mirror those in paid work (Table 4). Again we see periods of relative stability in time-use patterns while in an unchanging household, punctuated by rapid time use changes associated with family events. Again we see young single men and women starting with not dissimilar levels, but with the small year-on-year increase for women that may reflect an age effect or alternatively the consequence of previous partnerships. There is no substantial difference between the housework of young single people in general and that special group who are just about to form partnerships. Both young

men and young women increase their housework at the time of partnering, but women increase it somewhat more than men do, and a continuing 3 minutes/year increase during the partner-no children period means that in young couples just before acquiring a first child, men do approaching 60% as much housework as their partners, just after the child they do 55%, and in stable partnerships with children they do 46%. Middle-age-group single men and women have housework totals similar to those of younger people in partnerships – reflecting the fact that many of this group were previously partnered. The major family impact for this group is with the acquisition of a partner: as with the younger group, both show some increase in housework, but the woman's increase is larger than the man's, and continues to increase through the partnership period, with men's unpaid work at approximately 45% of women's. The older group shows even higher totals of paid work (though smaller differences associated with partnership formation). We should remember our earlier discussion of the "time-warp"; this group did acquire its primary socialisation around or before the 1930s, a time when gender roles were more sharply divided: all the more striking then that this group has a more even gender division of housework than the younger, with men doing 55-70% of their partners' total – presumably reflecting the changes in paid work shown in Table 3.

Table 4: cooking and cleaning

mins/day	stay single		acquire partner		stay partnered		with partner, acquire child		Stay partner + child		Stay partnered, child leaves	
	yr 1	yr 2	before	after	yr 1	yr 2	before	after	yr 1	yr 2	before	after
20-40												
women	34	37	38	64	79	82	80	97	123	125	133	128
men	26	26	28	45	48	48	47	53	58	58	56	60
41-60												
women	103	104	102	122	146	147	141	144	149	149	145	145
men	44	45	47	62	68	69	65	69	67	67	68	69
60+												
women	123	121	131	140	165	164			161	157	141	127
men	79	79	93	85	93	94			97	95	75	82

The other unpaid work activities, including childcare, as well as shopping, gardening, household repairs and household management, shows quite the most remarkable pattern (Table 5). Here again, for the youngest age group, we find the main changes, as previously, occurring around the points of family transition. But unlike the previous cases, these transitions are not the emergent points for gender differences. On the contrary, we see near-equality in the gender balance for persistent partnerships with no children. And though this slips considerably with the arrival of children, we still find men doing 83% of women's total in the continuing partnerships with children.

But the real contrast here is seen in the two older groups. Here the men do *more* unpaid work than women. The family transitions seem to have little impact and the totals do seem to increase progressively with age[4]. At no point do the higher proportional contributions of men to this category of unpaid work fully compensate in time terms for women's contribution to cooking and cleaning. But for the older age group the totals of the two sorts of unpaid work are at least *approaching* equality.

[4] This is unfamiliar result is not at all an artifact of the imputation methodology: just the same age/gender effect emerges from direct analysis of the HoL dataset:

Other unpaid work:
childcare, shopping, gardening ,other domestic
(UK 1999-200, HoL diary study waves 1 and 2)

	mins/day		N	
	women	men	women	men
all	120	107	726	632
aged 20-40	152	92	290	251
aged 41-60	96	104	291	246
aged 60	105	141	145	135

Table 5: other unpaid work

mins/day	stay single		acquire partner		stay partnered		with partner, acquire child		Stay partner + child		Stay partnered, child leaves	
	yr 1	yr 2	before	after	yr 1	yr 2	before	after	yr 1	yr 2	before	after
20-40												
women	57	56	55	65	67	70	80	188	186	180	146	85
men	45	47	49	60	66	68	73	162	154	151	142	131
41-60												
women	75	76	73	81	91	91	90	95	120	114	102	91
men	99	100	99	103	108	108	102	113	119	117	113	112
60+												
women	100	100	101	103	108	108			99	102	102	99
men	140	140	147	143	138	139			143	143	136	139

The younger adults' consumption time is most clearly affected by the acquisition of a child (Table 6). Both men and women reduce their time devoted to consumption activities by just under an hour per day with the arrival of the first child, and their totals of leisure hardly recover throughout the early years that children are co-resident. Only when the last child finally leaves home, does leisure time increase again, favouring particularly the youngest women. And as we see from the older age groups, the total of leisure time gradually increases as the children grow older and leave the household. It appears that older women have in general somewhat less leisure than men in equivalent family circumstances: this must be set against the totals of "sleep and personal care" where women show a reasonably regular excess over men, which reflects largely differences in personal care time. Women in the middle age group show more leisure time than men, around the time of having a first child. The reason for this difference is not immediately apparent, but may reflect the gender structured age difference between older couples having a first child.

Table 6: consumption

mins/day	stay single		acquire partner		stay partnered		with partner, acquire child		stay partner + child		stay partnered, child leaves	
	yr 1	yr 2	before	after	yr 1	yr 2	before	after	yr 1	yr 2	before	after
20-40												
women	385	379	371	354	347	347	345	287	295	296	304	362
men	411	406	389	378	367	367	360	303	300	301	302	326
41-60												
women	424	428	412	407	404	408	413	413	342	351	357	388
men	432	434	417	402	402	408	388	380	341	347	359	367
60+												
women	545	550	524	519	494	499			484	491	491	491
men	559	564	544	554	522	528			523	528	494	489

Off the main track

The remaining major transition that affects both sexes and each of the age-groups, is loss of a partner from a partnership with no children. This is most frequent for the oldest group, where the main reason is the death of the partner, but it occurs also with reasonable frequency among the younger groups, as a result of partnership dissolution.

Table 7 shows the effects for younger people to be, for both men and women, a small increase in paid work, using time freed as a result of reductions in the various categories of unpaid work.. For the middle age group, paid work shows small changes, but leisure time increases. For women in the oldest group, paid work and leisure both increase, while for older changes in each of the categories are relatively small.

Table 7: Time-use effects – lose partner, no kids

mins/day	paid work		housework		other domestic		sleep		consumption	
	before	after	before	after	before	after	before	after	before	after
20-60										
women	371	391	64	41	64	56	585	588	355	364
men	409	431	41	24	55	49	561	561	374	376
41-60										
women	226	232	131	103	86	77	587	594	410	435
men	339	332	55	42	97	97	553	557	395	413
61+										
women	26	40	159	123	111	100	623	632	522	545
men	57	54	95	85	145	143	598	599	544	559

The final pair of changes is non-symmetrical, each affecting just the two younger age groups, and applying to just one gender.

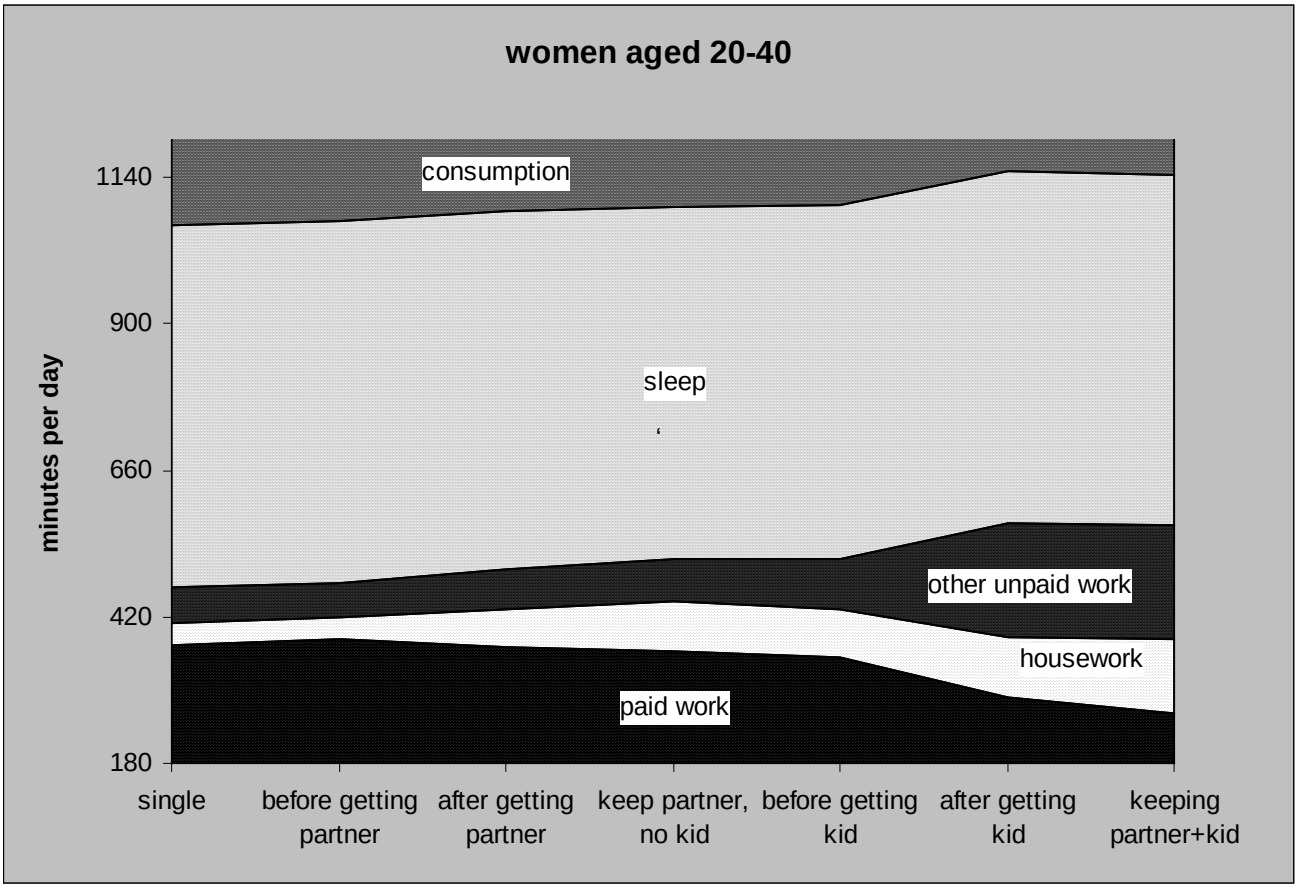
Of these, the first are changes that happen, with very few exceptions, just to women. The gender differential in expectations of child custody after partnership dissolution, means that virtually all of those who lose a partner but maintain co-residence with their child are women. In these cases we see in the first panel of Table 8, little change in paid work, and, perhaps surprisingly, reductions in unpaid work coupled with increases in leisure. The same differentials mean that virtually all cases of re-partnering while continuing co-residence with an own child are also women. The second panel of Table 8 shows the time-use consequences of re-partnering in this case to be a reasonably precise mirror-imaging of the first panel: the women increase their domestic work activities, seemingly, in those cases where they had a previous partnership, increasing towards the levels of domestic work in their previous partnerships, and reducing their leisure time to the previous levels.

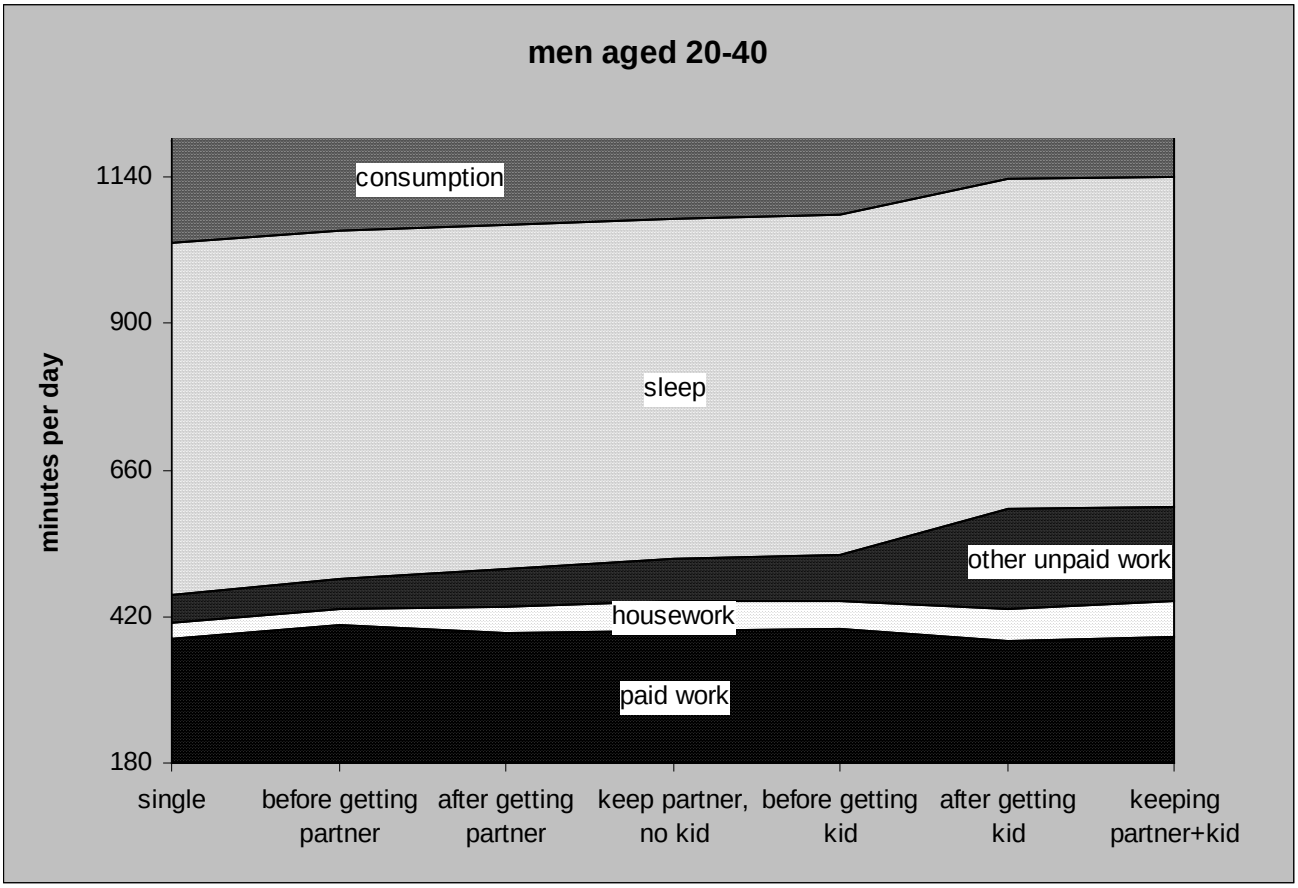
Table 8: Time-use effects – dissolution and reformation with and without children

mins/day	paid work		housework		other domestic		sleep		consumption	
	before	after	before	after	before	after	before	after	before	after
lose partner, keep child										
women 20-49	262	279	112	85	193	179	578	581	296	317
women 41-60	298	298	135	109	106	93	570	577	331	363
gain partner, keep child										
women 20-49	281	277	79	100	185	186	583	580	312	297
women 41-60	274	248	120	139	103	104	579	579	364	369
lose partner and child										
men 20-49	384	393	51	30	138	63	546	565	321	389
men 41-60	380	346	57	43	112	91	545	555	346	405
gain partner and child										
men 20-49	410	386	24	47	64	159	566	546	376	302
men 41-60	397	385	33	59	85	105	546	543	379	349

Then there are the changes that apply—for just the same reasons—almost exclusively to men. In the third panel we see small increases in paid work for younger men losing both partners and children, and a substantial decline in paid work for middle-age-group men in this position, accompanied by substantial (if unsurprising) reductions in unpaid work, enabling substantial increases in both sleep and leisure time. And, just as in the parallel women's case, those men whose experiences are set out in the fourth panel of Table 8, who are gaining both partners and co-resident children (and who in most cases are in fact again re-partnering) pretty much reverse the pattern of changes in panel 3.

Figures 3 and 4.





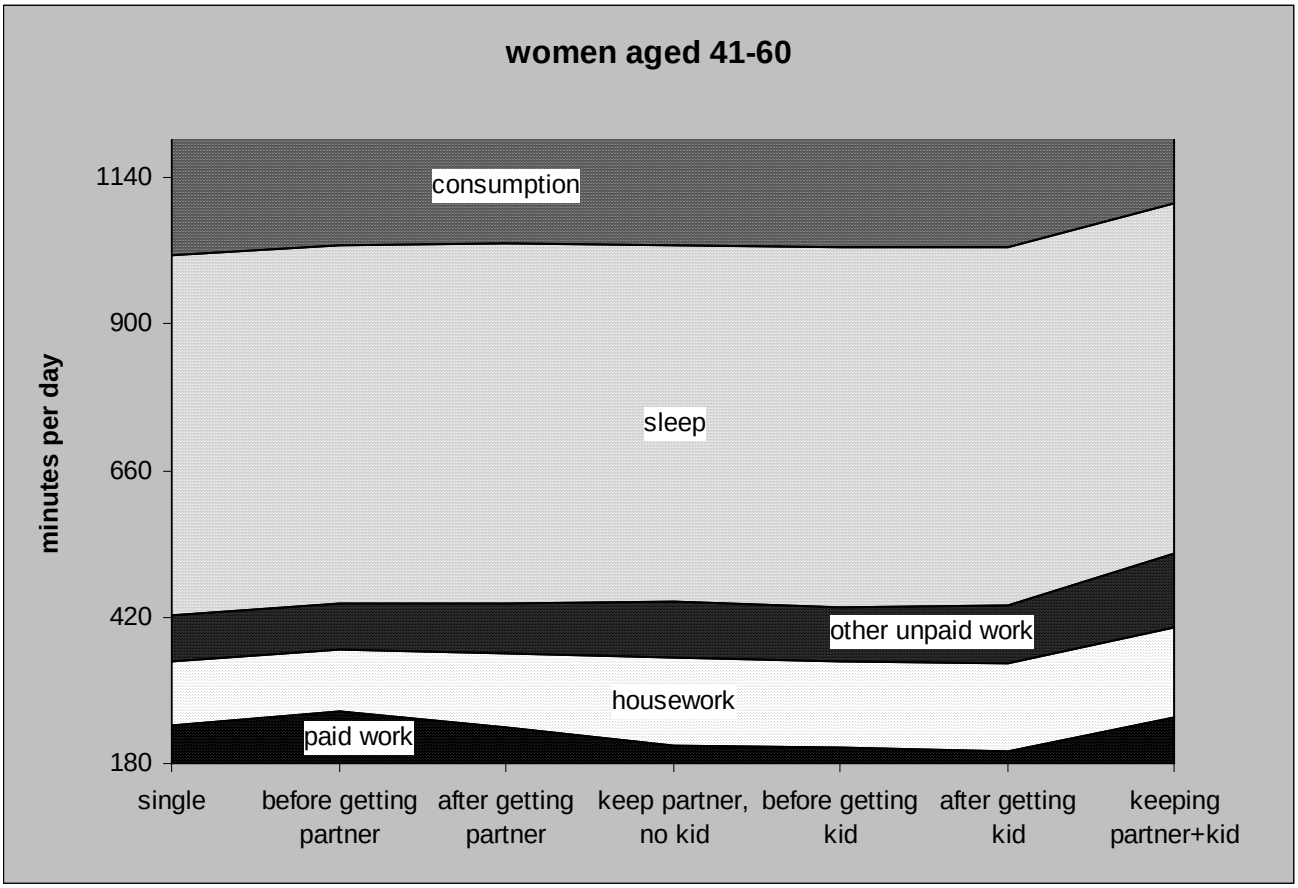
DISCUSSION AND CONCLUSIONS: FAMILY TIME-USE AND GENDER DIFFERENCE

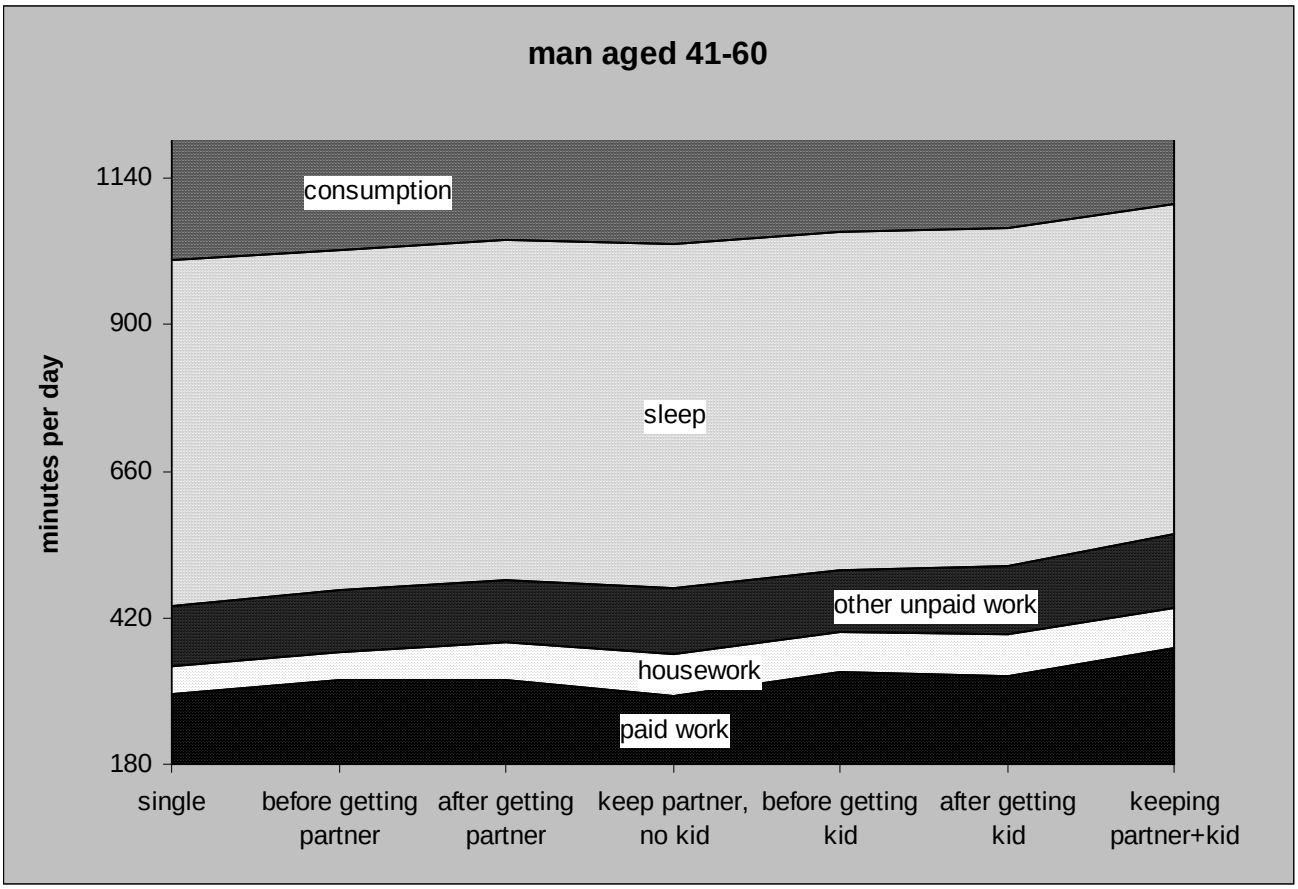
An important part of what has gone before are methodological arguments. We have considered problems with interpreting cross-sectional data as evidence of lifecourse change, the desirability in principle of historical data so as to follow cohorts—advice in fact not followed here. And we have in fact used real "longitudinal" evidence—repeated measurement of the same subjects—to observe how time-use changes with family transitions.

Time diary data is the technically correct source for this evidence. But it is not practicable (because of both financial cost and respondent burden) to collect the large scale time diary materials needed to investigate the effects of family transitions, on a panel survey basis. The alternative is data fusion: since we have time-use predictor variables in both a donor (HoL time-diary) and a recipient (BHPS) dataset, we use regression of predictors on time-diary evidence in donor data, imputing time use by multiplying resulting regression coefficients with predictor variables in the recipient data. What emerge are BHPS time-use estimates that make sense.

These estimates in turn allow us to produce important substantive conclusions. Lying behind the argument for the use of longitudinal data is in effect the general hypothesis that age, as used in conventional time-diary based discussions of time and the life-course, is acting as a proxy for family status and family "events". We can certainly conclude, from the evidence we have been discussing, that that this hypothesis is quite strongly supported.

Figures 5 and 6.





We have constructed a sequence of tables consisting of alternating pairs of columns, where the first pair represents two successive years in a given family state, and the second pair represent respectively the final year in that state, and the first year in the next state. Four generalised observations hold to varying degrees for tables 3 to 7:

1. Pairs of years in a given family status are relatively similar to each other – implying slow change in time use in each family state.
2. The average year in a given stable family state tends to show a similar level of time use to that of the year before a change in family state.
3. The largest changes in time use seem to occur between the two years surrounding a family transition.
4. The family transition effects are in general larger for younger people than for older.

In those cases where generalisation 1 is strongly supported but 2 is not—as in the Table 3 case of young women's paid work gradually increasing as the children grow up and leave home—we have in effect evidence of a small but steady time-use change, within a long-lasting family state. Where 1, 2 and 3 hold—as in the Table 5 20-40 men and women's other unpaid work—we have time use stability punctuated by brief changes associated with family transitions. And where all four hold, we have in addition the effect of an interaction of age with the family status and transition effects.

What remains, is to fit together the various stories about the use of particular elements of time—paid work unpaid work, sleep and leisure—into a narrative about the effect of the family cycle, on the entire 1440 minutes of the day; the impact of family life on time-use as a whole. Figures 3 to 6 put together for young and middle age-group women and men, the evidence for the sequence of family states and events that I have called the "main track".

Put together in this way, we see a dramatic divergence in the patterns of time-use of men and women through this family sequence. They start (looking at the left-hand sides of Figures 3 and 4) with relatively small differences, men doing just a little more paid work than women, women doing just a little more unpaid work than men. Progressively through the successive family status changes, and as they get older, these two differentials become more and more pronounced. This effect could be explained by, for example, the differential impact of general social norms on particular family circumstances—eg "women should reduce their paid work to care for children" would have just this effect.

But equally, even if this norm were completely absent, the effect would emerge as a result of a combination of rational choices within family groups, and the process of accumulation of social-structural characteristics described in the first section of this chapter. The initial very small differentials in work time, with men having just slightly more paid work than women, may give the man a small excess of accumulated human capital (or alternatively, there may be a residual of workplace discrimination leading to somewhat lower women's wage rates). New couples, considering divisions of work responsibility when setting up house together, therefore decide that it is marginally advantageous (in total income terms) that the female partner specialise slightly in housework while the male works some overtime. As a result the proportions of paid and unpaid work diverge, and human capital is accumulated at in increasingly differentiated rate between the sexes, so that, at the point of the next increase in unpaid work-needs, the birth of the first child, it would be simply irrational for the by-now-much-higher-human-capital male to take time out from his paid job. This is a recursive process: men's extra daily time in paid work adds differentially to their human capital, which

in turn makes it rational for couples to decide to increase the degree of gender specialisation in the different sorts of work.

Now in reality, both the norm-driven and the rationality-driven process work in parallel. We cannot really distinguish between these two. But it is important to remember that both operate together – because they are mutually reinforcing. Norms are, ultimately, what is perceived to be normal. So sometimes a rational process may result in a norm. But perhaps the more important effect is in the opposite direction. Over recent decades, expressed norms about women's special domestic responsibilities have been changing dramatically. Few British adults will now accede to the sorts of "women's place in the home" sentiments that were commonplace sixty years ago[5]. Yet, as we see from the final four figures, and despite the historical changes documented in Gershuny 2000, the gender differentials in paid and unpaid work remain dramatic. The norms have changed. But the rational process of recursive determination described above nevertheless provides an inertial effect that preserves the previous behaviour.

Why is this important? Does it matter that men do less unpaid work and more paid? In terms of the narrow time-use concerns of this chapter, it probably does not lead to any inequity, insofar as men's and women's totals of paid and unpaid work balance reasonably well, leading in turn to a quite equal overall balance of consumption time. But now consider what happens if the partnership dissolves. They have shared the income. He has built up the "human capital", she the domestic work skills and the stronger relationship with the children.

[5] Dex (1988 p 24) reports mid-1940s data showing in excess of 54% opposing married women's employment (except in wartime). BHPS in 1991 shows 27% of British adults agreeing with the proposition "A husband's job is to earn money; a wife's job is to look after the home and family." By 1999 agreement with this proposition had fallen to 20% (BHPS Documentation Vol. 2; frequency distributions for aopfamf and iopfamf Taylor et al., 2002)

Now they no longer share the income. He has the income from his high human capital, she has all that she can extract from her low human capital, constrained by the fact that she must also care for the children. Marketable work skills earn the income that gives the life-chances. He wins, she loses.

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Appendix 1: Two panel datasets

British Household Panel Study (BHPS)

Initial (1991) 5000 household national random sample; all adults in household interviewed annually. Questions on:

- work history, employment since last survey
- earnings, benefits etc since last survey
- family circumstances and history
- social attitudes etc etc.
- initial sample+descendents+current coresidents

Wave 1 response rate 70%+, wave-on-wave >96%.

Additional samples selected in Scotland, Wales in 2000 and NI 2001: now 9000 households, 16000 respondents annually. Full documentation on:

www.iser.essex.ac.uk/bhps/index.php

Home-on-Line ("HoL")

A 3-wave time-diary panel study, funded by BT 1999-2001, based at ISER. 1000 households, national random sample, with over-sample for computer-owning households. First wave personal interview for all adult members, leave-behind 7-day self-completion light diary for all aged 10+. First wave 60%+ questionnaire response rate, 50%- diary response. Specimen results on:

www.iser.essex.ac.uk/pubs/workpaps/2002-01.php

Diaries kept for 7 sequential days, with 15- minute recording period, and 35 fixed activity categories.

HoL contains, *inter alia*, various BHPS-derived activity/participation questions:

- Stylised estimate ("How much time…?) questions:
    - Paid work
    - Housework
- "who does…..?

- shopping cooking cleaning, clothes washing, used in fusion exercise described in Appendix 2
- DIY, childcare, not used in fusion.
- Participation frequency on 10 leisure categories, not used in fusion.

Appendix 2: The data fusion exercise

The main objection of principle to data fusion is simply that any variable that can be used as a **predictor** for another variable, could also be perfectly well be used as a **proxy** for it. There are three reasons for not doing so in this case. The first is that it is reasonably well established that the sorts of "stylised estimate questions" used to establish work times have the systematic biases mentioned in footnote 3 to the main text. The second is that we are concerned with a rather more detailed and differentiated activity classification than is available for the "stylised estimate questions"—eg stylised estimates of work times predict both housework and cooking and other domestic work, all grouped as a single activity. And third, the stylised estimates of time devoted to various activities, even if they comprehensively cover all the activities of the day, do not regularly add up to the 1440 minutes of the day, but normally to something like 1600 or 1700 minutes.

If we take a set of diary derived totals of time use the comprehensively cover all the daily activities (as in the five sorts of time use in table A1) and we use the same prediction equation for all the activities, then the predictions should all add up neatly to the actual 1440 minutes covered by the diary.

Table A1: Data fusion regression model coefficients
(HoL waves 1 and 2, n=1358) * p<.05 **p<.005

Coefficients represent minutes per day (mins/day)	paid	cooking, cleaning, domestic	other unpaid	sleep, other personal care	consumption.
stylised. housework time	-1 **	2 **	1 **	-1 **	-1
stylised. paid work time	5 **	0 **	-1 **	-1 **	-3 **
Age	-2	0	4 **	-2	-1
age squared	0	0	0 *	0	0
Woman	-23	-75 **	91 *	26	-19
woman*age	1	4 **	-4 *	-1	-1
woman*age squared	0	0 **	0	0	0
Do you shop?	6	2	4	-7	-6
Do you cook?	12	16 **	-16 *	6	-18 *
Do you clean?	-20 *	16 **	16 *	-17 *	5
Do you wash?	-18	10 *	9	10	-12
parent child<16	-191 **	4	328 **	-40	-101 **
stylised. paid work*parent	1 *	0 *	-2 **	0	1
age*parent	4 **	0	-5 **	0	1
woman*parent	3	-2	-16	20	-5
(Constant)	287 **	26	-25	651 **	501 **
Multiple R	0.76	0.71	0.52	0.37	0.64

Indeed, since the coefficients of the set of regression equations represent the effect of each of the characteristics on each of the comprehensive list of time-use categories, and given that more time spent by a person with a particular characteristic in one of the activities must imply less time devoted to another, it follows that the sum of each coefficient across all the time use categories (the rows of Table A1) must be zero. Similarly, the sum of the intercepts is 1440. The correlations for each of the prediction equations is sufficiently high to meet the requirements for data fusion (with the possible exception of sleep). So we proceed to the next step, applying the coefficients to the relevant waves of the BHPS.

Table A2: Imputing time-use data to the British Household Panel Survey

Mins/day

BHPS

	stylised estimates		**imputed BHPS time use data**				
	paid	domestic	**paid**	**housework**	**other unpaid**	**sleep**	**consumption**
1994	186	106	**240**	**90**	**105**	**586**	**419**
1995	189	105	**238**	**91**	**106**	**585**	**420**
1996	190	104	**235**	**91**	**107**	**585**	**422**
1997	193	101	**233**	**92**	**107**	**586**	**422**
1998	192	99	**229**	**92**	**108**	**586**	**424**
1999	189	97	**224**	**93**	**109**	**587**	**428**
2000	188	97	**219**	**94**	**110**	**587**	**430**

Home-on-Line

	stylised estimates		Actual HoL diary data				
1999	196	94	260	82	110	583	406

Table A2 shows the most relevant statistics from the original surveys, and in bold type the imputed time-use estimates in the successive BHPS waves. The systematically higher level of imputed paid work time over the stylised estimate is mostly explained by the inclusion of travel-to-work in the paid work diary variable used in the imputation estimate. We can see the regular annual differences in work time in the successive BHPS waves that follow from the aging of the balanced panel. Plainly the imputed time-use values in the BHPS correspond well to the diary data in the HoL study. These are the imputed time-use estimates used in the main text.