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Diskussionspapiere
Discussion Papers

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**Change in the Division of Domestic
Work: Micro-sociological Evidence**

by
Jonathan Gershuny*

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Deutsches Institut für Wirtschaftsforschung

Discussion Paper No. 107

Change in the Division of Domestic Work: Micro-sociological Evidence

by
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change in the division of domestic work: micro-sociological evidence

Jonathan Gershuny

1 preamble

This paper introduces a new variable to the discussion of socioeconomic dynamics in household panel studies: the division of domestic labour among married or cohabiting couples, as estimated from the panel respondents' answers to questions about their own domestic work time. The paper provides, for the first time, direct evidence that the balance of domestic labour between men and women in couples is directly influenced by changes in spouses' participation in paid work. It also provides a notably clear illustration of the class of research problem that specifically requires panel evidence rather than cross-sectional or retrospective data for its solution.

2 the problem: the *dual burden*

Time allocation data for the industrialised world, whenever and wherever collected, shows the persistence of women's specialisation in domestic work. The first large scale multinational comparative study of time use, carried out in 1966 (Szalai 1974) showed this specialisation not just in Western Europe and North America, where women's participation in paid employment had been the exception, but also in those Soviet bloc countries where full time women's employment had been the norm for two generations. All time use evidence collected before and since has shown the same pattern: women in full time employment do a larger total of (paid plus unpaid) work than do their full time employed husbands: this is the "dual burden". The implication is presumably that, irrespective of change in the gender distribution of paid work, all industrial societies bear, through some set of mechanisms for the intergenerational transmission and intragenerational maintenance of the instruments and habits of power and subordination of one sex by the other; what Veblen described as a relic of the barbarian's "profound sense of the disparity between man's and woman's work" (Veblen 1925 p 5).

Economists assume that couples (and others) within a household make a rational choice among alternative mixes of employment and domestic work; spouses arrive at an optimum mix -- obviously they have different human capital characteristics, so there is no reason to assume the men and women should end up with the same distribution of paid and unpaid. And certainly, if one partner (the wife), should as a result of the spouses' rational consideration of the alternative distributions of the overall burden of work tasks, move from non-employment into employment, we would expect that, *ceteris paribus*, under rational choice the division of domestic responsibilities between the partners should adjust, "adapt", to compensate.

But the "dual burden" evidence suggests that the partners do not (or at least do not sufficiently) adapt. Plainly, the outcome of a collective rational decision to optimise sums of

utilities that, regularly and without exception across the globe, systematically produces substantially more satisfactory outcomes for one sort of party than for another, must require, to say the least, some explaining away. This is of course only possible by making some rather special assumptions, either about differential preferences or habits (of the "women enjoy housework" sort) or about differentials in non-economic resources (ie marital power).... both of which take us firmly into the sociological realm.

Sociologists use rather different models. The "dual burden" borne by employed women as shown by the time use data may be taken as evidence of women as "dependent" labour (as in what may be considered the classic account of this phenomenon, Meissner et al 1975). In this account women are seen, in rather macro terms, as a secondary labour force whose primary task is reproductive activity outside the labour market, women are only released into the labour market once this primary task has been completed. Or, in other more micro-sociological accounts, women may be seen as prisoners of fixed "gender ideologies" which can be as important in preventing women giving up gendered work-roles as in preventing men from taking them on (Berk, Hochschild). Both macro and micro views raise the same possibility: of a combination of dependent labour or equivalent social theory, with an economic model involving special bargaining or preference assumptions, to produce a deeply pessimistic view of a permanently oppressed *undersex*, able to enter the labour force but not able to adjust the division of domestic work.

However, researchers in many countries have been collecting national samples of time-use data for many years now, providing historical comparative cross-sectional evidence of whether patterns of gender segregation in domestic work do in fact stay constant. From the early 1980s onwards a number of studies have attempted to estimate and explain patterns of change at a more or less aggregate national level. At first these covered single countries or regions (eg Gershuny 1983, Elliott, Harvey and Macdonald 1983, Gronmo and Lingsom 1986, Niemi and Paakkonen 1990), and later multinational longitudinal comparisons (Gershuny and Robinson 1987, Babarczy Harcsa and Paakkonen 1991, Gershuny and Robinson 1991). These studies show small but clear and very regular developments: over the decades, as women progressively enter the labour market, they do less domestic work (ie show reductions in time spent cooking and housecleaning), and men do more of these (as well as more shopping and childcare). But despite these results, the assertions of "no change in domestic labour patterns" are still routinely found in much of the research literature, perhaps because the results are disbelieved, perhaps because they are incorrectly interpreted as contradicting the cross-sectional "dual burden" evidence, or more reasonably, on the grounds that the absolute changes are really quite small, and (as for example Hochschild 1989 argued) seemed anyway to have ceased by the end of the 1980s.

Hochschild developed the view that while there is evidence of changes in attitudes, there is nevertheless a standstill in practise. She sees women and men as constrained by what are almost, though not completely, inflexible *gender ideologies*, acquired in childhood, which serve to specify differential responsibilities of husbands and wives for particular household tasks. Other areas of economic socialisation have undergone substantial change. Women born in the later 1940s and subsequently had sufficient childhood exemplars of relatively successful career women that they no longer believed that their inevitable adult destiny was primarily in domestic work. But they nevertheless grew up with traditional models of allocation of domestic responsibilities (as did their brothers). The "dual burden" is the result, and it produces what she, writing in the US, sees as a nationwide (we in Europe might see it as a global) crisis in domestic relations (which in her account is uneasily and temporarily resolved by the

development of "household myths" about domestic work allocations which reconcile politically correct discourse about gender equality with the *realpolitik* of gender difference).

In what follows, I develop a view which moves away from the rather static consideration of fixed ideologies and gender differences in preferences and so on, towards a more processual account of gradual change in the behaviour of couples. I propose a "lagged adaptation" model, which is perfectly compatible with a not-overconstrained reconceptualisation of rational choice (along the lines envisaged by Coleman 1993, Hartmund Esser 1994). The argument uses, for I believe the first time in this literature, real, large scale longitudinal survey evidence of change in the division of domestic labour at the micro (household) level, drawn from the German and British socio-economic household panel studies.

3 cross sectional evidence

But first, let us consider the cross-sectional evidence. We can see some differences in the division of domestic work between couples with different combinations of employment status. Table 1 shows evidence of total work times (paid and unpaid) of husbands and wives from the German SOEP data, broken down by various combinations of employment statuses. We see here the dual burden quite starkly illustrated. Employed wives do, overall, some twelve hours per week more work than their employed husbands. We can see however that employed husbands of employed wives do more domestic work than those with nonemployed wives, while wives with jobs do substantially less domestic work than those without. And we might argue that this signifies at least partial adaptation, on the inference that the cross-sectional differences imply that change in the wife's employment lead to change in the division of domestic labour. But in fact this might result from precisely the opposite causal process: it may be that, to put it in an extreme fashion, it is just that those husbands who adopt a less extremely gender differentiated view of domestic work roles, are the ones who *allow* their wives to take jobs.

Table 1 Hours of different sorts of work in Germany 1992

	The "Dual Burden"						N
	couples in the German Socio-economic Panel (SOEP)						
	wives			husbands			
	domestic	paid	all work	domestic	paid	all work	
entire population	53	15	68	21	34	55	1510
no jobs: unemployed	59	0	59	27	0	27	34
no jobs: retired	44	0	44	23	0	23	338
husband employed wife not	71	0	71	17	48	65	444
both employed	47	33	80	20	48	68	617
wife employed husband not	37	36	74	35	0	35	77

Causal direction is of the essence of this argument, and of what follows in this paper. Cross-sectional evidence is a very difficult basis for making causal attributions at the micro level. It always involves inferring change in individuals' behaviour or circumstances from differences between individuals. We can however get a little further by collecting retrospective data, accounts of past conditions collected within a single survey. Of course, some retrospective data is likely to be very unreliable. Given what we have already encountered concerning inflexible gender ideologies and household myths, we certainly would not wish to attempt to collect retrospective evidence on the division of domestic labour. But other less politically charged and more easily categorised evidence can be established retrospectively; we can for example collect reasonably reliable retrospective employment data.

And we can use this to explore differences in the division of domestic labour across people with contrasting employment histories. A fuller version of the theory follows; but briefly, I will argue that there is a slow and extended, a *lagged*, process of adaptation to change in the wife's employment status: the longer the wife has been in employment, the more chance the spouses have to go through the painful process of gender resocialisation implied by the adjustment of domestic work allocations to the changed circumstances. There is some partially persuasive evidence of this process for the UK, drawn from the Social Change and Economic Life data for 1986 (Gallie et al 1994). We should note that this "lagged adaptation" approach would allow us to resolve the apparent conflict between the cross-sectional dual burden phenomenon and historical change in men's and women's relative contributions to unpaid work: simply, the cross section sample of two-job households includes some in which the women has many years of employment experience, and have adapted their domestic practices, while in others the wives have much less employment experience, and have not yet adapted (Gershuny et al 1994). If adaptation is in general achieved (if at all) only after years of protracted domestic negotiation, the average across all couples will necessarily include many, perhaps a majority, of wholly or partly unadapted couples: hence the "dual burden".

We can virtually reproduce the previously cited UK result, from later, quite independent data, and indeed produce virtually the same pattern of effects from exactly parallel West German and UK data. Table 2 uses a pair of hybrid datasets, which combine cross-sectional survey evidence from the 1992 waves of the British Household Panel Survey (BHPS) and the German Socioeconomic Panel (SOEP), merged with special retrospective work history evidence collected from the respondents to the two panel studies. The dependent variable is the wife's proportion of the couple's total of domestic work (the division of domestic labour or "dodl" index), calculated from the same sort of unpaid work hours data used for Table 1; a dodl score of .5 represent equal sharing of unpaid work, a score of 1.0 means that the wife does all the domestic work. Table 2 uses a version of dummy variable regression, Multiple Classification Analysis (which calculates means and "effect parameters" from partial regression coefficients and intercepts). The effects of part-time work clearly differ but otherwise we see really very similar patterns of effects of the various sorts of employment characteristics in the UK and Germany. And in particular it does look as if in both countries, just as the "lagged adaptation" model would suggest, the longer the wife has been employed full-time in the workforce, the more equal the dodl index. In the UK the estimate of the mean dodl for those women with no full-time work experience in the 6 preceding years is .81 (ie .79+.02), and falls to .74 for women with 6 or more years of full-time experience; in Germany the equivalent dodl scores are .88 and .76 respectively.

Table 2 determinants of the division of domestic labour

	index		1 = she does it all 0 = he does it all	
	UK_____		Germany_____	
grand mean		0.79		0.86
age in years (raw regression)		0.001		-0.001
	N	effects	N	effects
wife's full time work, 6 preceding years				
0 full years	1305	0.02	1286	0.02
1	116	0.01	89	0.00
2	105	0.01	52	0.00
3	102	-0.02	56	-0.06
4	111	-0.05	59	-0.04
5	71	-0.05	66	-0.08
6 full years	406	-0.05	144	-0.10
wife's part time work, 6 preceding years				
0 full years	1468	-0.01	1254	0.01
1	140	0.04	140	-0.02
2	104	0.01	113	-0.03
3	85	-0.01	73	-0.04
4	102	0.02	63	-0.03
5	42	0.02	35	0.00
6 full years	274	0.04	74	-0.04
couple's joint employment status				
no jobs: unemp	143	0.01	68	-0.01
no jobs: retd	419	-0.06	389	-0.06
huband emp wife not	461	0.08	548	0.05
both emp	1045	0.01	651	0.02
wife emp husband not	149	-0.15	96	-0.16
Multiple R Squared		0.145		0.141

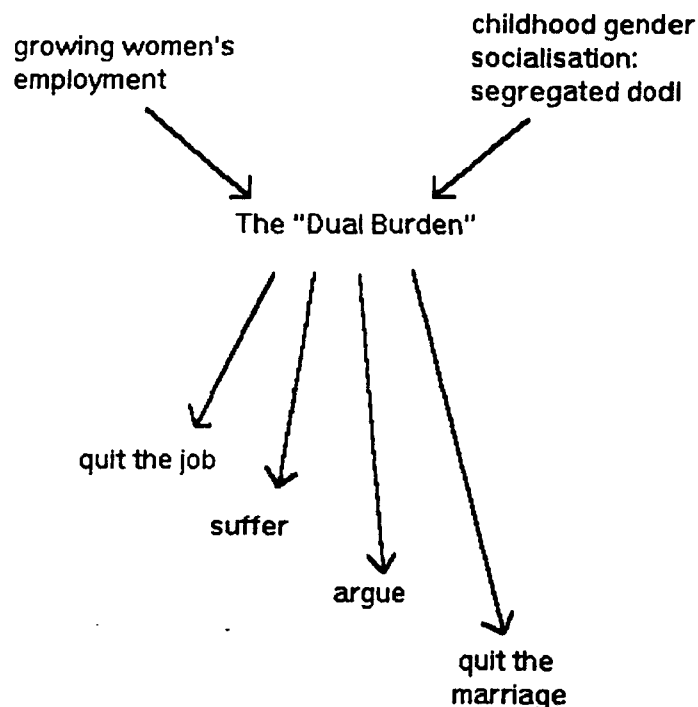
Is this sufficient to establish the case for adaptation? In fact it is not -- for reasons that are, in effect, a more sophisticated version of the "causal direction" issue that we have already encountered in relation to the purely cross-sectional "dual burden" evidence.

4 exit, voice and loyalty

Consider Figure 1, which sets out four possible outcomes of a "dual burden" for a female partner. Of these four, three are consistent with the evidence of increasingly egalitarian domdiv with increased full-time work experience:

- it could have been a process of *lagged adaptation* of the sort I have briefly outlined;
- *or* it could be that some women who spent a period in the labour market bearing a heavy dual burden, failed to adapt their and their husbands' domestic practices and subsequently *left their jobs*, or took part-time ones.
- *or* it could be that that some women who spent a period in the labour market bearing a heavy dual burden, failed to adapt their and their husbands' domestic practices and subsequently *left their husbands*.

Figure 1. four answers to the "dual burden"



The position is analogous to that described in Hirschman's well known text **Exit Voice and Loyalty**. "Loyalty" in this context means suffering the dual burden without redress. "voice" is what gets raised in some of the more purple passages of the marital conversation as the dual burden crunch is reached, and as a result the couple either adapts its division of domestic labour, or, finally, experience "exit" -- from either the wife's job or from her marriage. Both sorts of exit might involve people with highly segregated division of domestic labour, which would in turn mean that even if there were no adaptation whatsoever among those still in employment, the longer the couple survives with the wife in employment, the lower the mean of the domdiv for the surviving couples. The evidence from the hybrid cross-

sectional/retrospective data file just shows us the end state of a longitudinal process; the result does not distinguish between the various alternative ways of arriving at that end state.

Or to put it another way: the retrospective data in the hybrid file might be subject to a sort of sample selection bias: it represents the division of domestic labour just of those couples who survived as couples with wives in full time employment. We cannot, using retrospective data, distinguish between these processes of selective survival of couples with a relatively egalitarian dodl. and genuine processes of micro change in the division of domestic labour. Before we go further, we should pause to consider in general terms what such a micro process might look like.

5 an adaptation process

The "lagged adaptation" argument derives from three common sociological approaches to understanding individual action: relating respectively to habits, skills and meanings. Altogether the most fundamental of these is the view that people in general mostly just *behave*. We all have expectations and *habüs*, which are the outcome of our socialisation; we do not have to choose our actions, we do not have to act in a well motivated fashion, except under rather special circumstances in which our habitual behaviour leads to outcomes which confound our expectations to an uncomfortable degree. Our pictures of what we, as men or women, might expect to do in our own homes stem to a considerable extent from our childhood. We are likely to have initial expectations of domestic responsibility which follow our same-gender parents'. Indeed we can provide evidence of a significant effect of parents' behaviour on their children's dodl (Gershuny et al 1994) that closely parallels the well known effect of parents' voting patterns on their childrens' (Butler and Stokes 1970). Those of us brought up in Western Europe or North America at a time at which employed mothers were exceptional rather than normal, are liable to have rather gender segregated views of domestic responsibilities: girls grow up to do housework like their mothers, boys not to do it like their fathers. This first sociological perspective relies on a concept of habit, in the sense of unmotivated repetition of previous patterns of activity.

A second complementary perspective, involves Bourdieu's particular application of the concept of "human capital". Bourdieu discusses consumption *skills* (eg that knowledge required to enjoy a Mozart symphony, which might have been acquired through infant socialisation in the family of origin, or acquired at school or through subsequent concertgoing with friends: Bourdieu 1984). Similarly, skills in domestic work must somehow be acquired, and men brought up by fathers who do not do domestic work may not develop skills appropriate for domestic production. And this second perspective merges to some degree with the first. Habitual behaviour consists of a pattern of activity which is well adjusted to the individual's material and social context, in that it allows the individual to behave appropriately and effectively without paying the "information and transactions costs" involved in making a rational and motivated selection among alternative courses of action. It is itself a sort of skill. Habit -- if this is not overstretching the metaphor -- may itself be considered a form of human capital.

And a third complementary perspective uses the language of roles and norms. The habitual patterns of gender-differentiated activity are themselves constitutive of gender ideologies. They are likely to have some psychological *meanings*, whether these be considered in terms of some theory of internal balance, of maintaining a positive self-image by conformity with

internalised norms, or by conformity to some external reference-group expectations. Successfully maintaining the role of homemaker, or maintaining time in the home as spent by right in conspicuous idleness, may in either case be conducive to psychological well-being. In this way habit might be viewed as a valuable psychological resource, achieved over an extended period, and costly to challenge.

In each of these cases behaviour -- whether considered as a recapitulation of a repertoire of past behaviours, or as a summary of human capital, or as a psychological resource -- has a rather Newtonian character; it has its own moment of inertia, it proceeds quite independent of any sort of rational calculation.

But habits which are appropriate to some contexts are not appropriate to others. Contexts change, and habits that were appropriate become inappropriate. Husbands' contribution to household domestic work may continue what was habitual to their fathers' despite the fact that their wives, unlike their mothers, have paid jobs outside the home. Wives may similarly, and without any ratiocination -- and despite their entry into paid employment -- reproduce their non-employed mothers' patterns of domestic activities. And this failure to change produces substantial inequities in total work time between the sexes. Thus a couple might "behave" itself into one of those special social circumstances in which rational action is required. The habitual behaviour of both parties produces a contradictory outcome in terms of differentials in time pressures and inequities in work burdens, which, as (or if) they becomes explicitly recognised, forces some sort of motivated action on the couple.

And at this point some form of rational calculation about the nature of changes in behaviour may be desirable, or even unavoidable (though there are in principle alternatives, such as random and unconsidered experiment). The couple may as a result agree major changes, the husband perhaps agreeing to take over responsibilities for a major area of housework, the wife agreeing to give it up. But such action is very highly constrained by the three sorts of habitual mechanism. The *recapitulation* of yesterday's minute-by-minute routines today has to be actively and continuously resisted throughout the day (the husband has an habitual route to the living room from the front door, and the wife to the kitchen, and varying these requires, at first at least, a continuous minute-by-minute awareness of the implications of the agreed change). The *skills* of domestic production are only gradually built up (the husband may not understand the mechanism of the washing machine, or have ability to sort the clothing appropriate for different washing machine programmes). And the *social-psychological meaning* of participation in the various domestic activities may inhibit the agreed action (the husband may feel that cooking is contrary to his male peer expectations -- or the wife feel that by reducing domestic work she sacrifices her gender identity). So even with an intent to honour the agreement, the partners may not in fact do so. Any actual changes are likely to be in the agreed direction, but the scale of such change may be much smaller than was anticipated.

In short, for clear reasons, major shifts in housework practices may be agreed, but only minor shifts be actually achieved. Children by contrast, socialised in households within which the Figure 1 processes are active, have a different starting point and are likely to be more sensitive to the issue, so move further and faster than their parents. Nevertheless adaptation of dad to the change in women's employment payterns can be expected to be a slow process, probably taking more than one generation, perhaps more than two.

But for the present discussion, we should observe simply that we would not expect to find full compensation for the wife's increased paid work by reduction in her unpaid. The substantive

question becomes: does *any* such change actually take place? So far, in the scientific literature (though with one exception noted below), we have no evidence that there is any such process at the micro level .

6 Panel evidence on dodl

Both the German and UK national panel studies (the German Socio-Economic Panel and the British Household Panel Survey) carry, in various waves, questions about respondents' amounts of household work time, and it is these questionnaire-based time use estimates that form the basis both of the previous and the following empirical discussions of the dodl.

Questionnaire evidence is not ideal. Time allocation is not a natural category of knowledge; we only need to know how exactly how much time we spend in particular activities under very special circumstances (eg flexitime workers need to know work time). That is why the conventional methodology for making accurate estimates of time use involves the use of diaries recording sequences and clock times, from which researchers can calculate elapsed time in activities. But diary instruments are very expensive, and also quite burdensome to respondents (a matter of importance in the design of panel survey instruments where great emphasis must be placed on minimising sample attenuation). And the questionnaire-based time-use instruments, though inaccurate, are not substantially or systematically biased when compared to diary-based estimates -- we may consider them to be simply "noisy" estimators (and, *inter alia*, therefore be not dissatisfied where, as in Table 2, we have only limited success in variance explanation).

The basic dodl indicator used in this paper is really very simple. We identify couples. We take the total of domestic work (for these purposes just housecleaning, cooking and childcare) for each person, and divide the wife's domestic work by the husband's plus the wife's, to get an index which is directly interpretable as the wife's proportion of the couples' total of housework time. We then look at longitudinal changes in, and longitudinal influences on, this simple dodl index.

The calculation of the dodl index is straightforward, but the preparation of the panel material is anything but uncomplicated. Both panel studies are based on household samples, and all the adult members of each sampled household are interviewed in each wave (though, since individuals are followed across waves and the sampled household in each wave is identified by the presence of an individual from the previous wave, it may be more helpful to think of the panels as focussing on a sample of individuals followed over time). For each wave of the panel we have a number of pieces of information on each respondent, including housework time and other relevant characteristics, his or her own identity number, and the identity of his or her own marital partner (or cohabitee, henceforth "partner"). The data file used in the following analysis is constructed as follows: Each individual who appears in any of the waves used in the analyses (A to F of the SOEP) becomes a case, and each case covers all of the waves. The case contains a number of variables describing characteristics of the individual at each wave, (which are all set to missing if for some reason that individual was not interviewed in that wave) together with a similar set of variables describing the characteristics of that individual's partner for each wave (which are all set to missing if that individual has no partner in that wave or the partner did not respond).

Each case, therefore, carries sequences of information about each respondent, together with information about his or her partner (or partners, since each individual may of course change partner over time), in each successive waves. This means that many individuals will appear twice, both as respondents and as partners. This may provide a correct representation of the sampled population, but, since our concern is with the behaviour of couples, we chose for analysis just the women respondents, leaving the men of the samples to appear only as appended spouses in the dataset.

7 Cross wave analysis

Table 3 aggregate changes in domestic work time and and dodl

women's domestic work hours per week		
		N
1985	42.73	3333
1986	42.62	3531
1987	42.05	3767
1988	41.25	3993
1989	41.45	4284

men's domestic work hours per week		
		N
1985	12.14	2199
1986	11.93	2351
1987	12.39	2510
1988	12.38	2608
1989	12.83	2755

wife's proportion of all domestic work (dodl)		
		N
1985	.79	2167
1986	.79	2321
1987	.78	2500
1988	.77	2615
1989	.77	2774

Table 4 sets out the basic time use statistics for waves B to F of the German SOEP (the first wave used a slightly different and somewhat non-comparable question). We can see that the questionnaire-based evidence yields in aggregate the characteristics that we would expect on the basis of the time budget diary evidence. The women do substantially more domestic work (ie cooking and cleaning plus childcare, weekdays plus weekends) than the men do. This is an unweighted sample, the numbers of respondents increase over time as the original sample members acquire spouses. If we take these numbers seriously -- and there is no a priori reason to suppose that weighting would make a difference in this case -- we see hours of domestic work for women falling somewhat over the period (by around an hour and a half over the five years) and men's domestic work increasing by about the same amount over the same period.

The third panel of Table 3 calculates the woman's proportion of each couple's domestic work time for each of the 5 years. The major feature of this dodl index is the gender specificity: wives do more than three-quarters of all the couple's domestic work. And again (albeit with unweighted data) we see a small change over time, a gradual shift, on about the scale that

would have been expected from the cross-national longitudinal time budget data, towards less unequal sharing of the domestic work.

Table 4 correlations among dodl indices

correlation coefficients
all significant at .000

	1986	1987	1988	1989
1985	.6105	.5713	.5175	.4262
N	1832	1859	1829	1821
1985		.6444	.5645	.5026
N		2036	2020	1997
1987			.6687	.6106
N			2198	2192
1988				.6350
N				2335

The evidence discussed so far is entirely cross-sectional, and tells us nothing that could have not been seen from ordinary survey materials. But now we move to considering the particular advantage of panel materials: their ability to relate together the behaviour of individuals, or in this case couples, at successive points in time. Table 4 is a correlation matrix relating together dodl indices for the various years. The major diagonal of Table 4 (giving the associations between 1985 and 1986, 1986 and 1987 and so on) shows the strongest correlations, ranging between .61 and .67 (ie each year's dodl index explains 37% to 45% of the same couples' division of domestic work in the following year). This might be thought a rather high rate of change, considering the previous arguments concerning stability. But the year-on-year difference in the dodl index in fact reflects two different phenomena: measurement error in each year, and real change between the years. Having multiple years of data allows us to distinguish between these (at least on the assumption that the measurement errors are random in each year). Simply, if the measurement errors are random, the difference between any two years' dodl indices, for any given pair of partners, that results from measurement error, will be approximately constant, *irrespective of the number of years gap*.

Some of the measured change in dodl reflects real changes in the couple's behaviour, and of this, some might in principle reflect just random changes in domestic practices, and some reflect influences of external factors which take their effect randomly at any point in the couple's life together. These sorts of change are difficult, and sometimes impossible, to distinguish from measurement error. But there is another sort of change that can be distinguished from these: change that is cumulative through the couple's life together, change that increases with the passage of time. If all the change were of this cumulative sort, then, we would expect to see, in Table 4, that the association between couples dodl indices over time should get regularly weaker over time -- that, for example, the correlation coefficient over two years would be approximately the square of the correlation over one year.

With a gap of two years, the association shown in Table 4 is weaker ($r=.57$ to $.61$; 32% to 37% of the variance explained) but still much higher than would have been the case if the intertemporal association had been cumulative. Under such a cumulative process with year 1 to year 2 associations of around 0.64, the years 1 to 3 associations would have been 0.41 rather than the 0.57 to 0.61 that we see. And similarly, the years 1 to 4 correlations would have been 0.17 rather than 0.51, and the year 1 to 5, .03 rather than 0.43. Table 4 gives evidence of an ongoing regular cumulative change in $dodl$ -- but also of some considerable stability.

We might make two observations here. (1) These are really quite high correlations considering the nature of the underlying survey instrument. After all, respondents give answers independently to questions about their time use, are not asked directly about patterns of sharing work, which are subsequently constructed by researchers. Considering how the $dodl$ indices are constructed, their relative stability over time is itself a striking demonstration of the usefulness of the technique. (2) The gradual but regular decline in the cross-time association is at the least suggestive of the proposition that there is an underlying ongoing sociological or economic process. I shall suggest, in line with the previous theoretical discussion, that this process might be straightforwardly described as a set of habitual domestic practices which is progressively modified by the couples' changing material circumstances. Table 5 sets out evidence for a very simple version of such a model.

Table 5 Cross wave change in dodl

	1995/6	1996/7	1997/8	1998/9
change in domdiv				
Grand Mean =	0.00	-0.01	0.00	0.00
wives' emp change				
1 ft to ft	0.00	0.01	-0.01	-0.01
2 ft to pt	0.11	0.05	0.01	0.02
3 ft to ne	0.15	0.10	0.12	0.11
4 pt to ft	-0.05	-0.11	-0.06	0.00
5 pt to pt	0.00	0.00	0.00	0.01
6 pt to ne	0.02	0.03	0.03	0.04
7 ne to ft	-0.11	0.01	-0.07	-0.11
8 ne to pt	-0.05	-0.04	-0.03	-0.05
9 ne to ne	-0.01	0.00	0.00	0.00
husbands' emp change				
1 ft to ft	0.00	0.00	0.00	0.00
3 ft to ne	-0.11	-0.13	-0.12	-0.07
5 other	-0.01	-0.01	0.02	0.04
7 ne to ft	0.13	0.10	0.10	0.12
9 ne to ne	0.00	0.02	0.01	-0.02
age of youngest child				
0 no child	-0.01	-0.01	0.00	0.00
1 baby	0.02	0.01	0.00	0.01
2 aged 2-10	0.00	0.00	0.00	0.00
3 aged 11-16	0.00	0.01	-0.01	-0.01
respondent born				
before 1932	0.02	-0.01	-0.02	0.00
1932 - 1951	0.00	0.00	0.01	0.00
after 1951	-0.01	0.01	0.00	-0.01
Multiple R Squared	0.072	0.055	0.058	0.045
Multiple R	0.268	0.236	0.24	0.212

It takes the first difference in the dodl index (the change from year to year), between each pair of years, and seeks to explain these by various characteristics of the couple, and change in their employment patterns. The age of youngest child and (wife's) birth cohort variables explain little and are only weakly if at all significant (unsurprisingly since these vary much less than the dependent variable). But there is more happening in the case of the the independent variables describing the spouses' changed employment circumstances. The overall proportion of variance explained is small, because these are rather noisy estimators, and a large part of the first difference will be noise (and also only a small minority of respondents and spouse do in fact change their employment statuses). But through this noise comes a really quite unmistakable signal.

In seven of the eight cases where the wife enters employment (ie from ne to pte or fte in each of the four pairs of years), the dodl becomes markedly more egalitarian -- and in all eight cases where the wife leaves employment the dodl becomes more unequal. The effects are in general (though with one major and as yet unexplained exception) much larger in the direct transitions from ft to ne and back, than between pt and ne. And the effects are generally much larger

going out of employment than going into it -- this last being strongly suggestive of the inertial effects resisting change in dodl described in a previous section.

Note also the effects of changes in husbands employment status. There are smaller numbers of such changes, but they show clear associations with dodl change. In these cases there are not such clear differences in scale of change in dodl with direction of employment change

These quite clear and significant effects are of great importance, since they allow us to infer causation. There is a plausible cross-sectional model that would allow for an association between employment status and dodl with cause going from dodl to employment status. But it is not possible to produce a plausible causal model that has *change* in dodl causing *change* in employment status. (Except of course in the case of a conscious strategy, as where a husband decides to do more domestic work to help his wife's employment prospects, which is a sort of special *ex ante* case of adaptation).

But Table 5 gives just dodl aggregates for couples. There are various ways that the domestic arrangements could change so as to reduce the dodl index. There remains the possibility that this represents a rather limited form of adaptation, which consists just in women reducing their domestic work time: do men in fact change their domestic work as a result of their wives' change in employment status? Table 6a suggests with reasonable clarity that they do so. Of the eight cases of wives entering employment, husbands increased their domestic work hours in seven. As we see from comparison with Table 6b which shows the equivalent changes for women, the greatest part of the change is nevertheless accounted for by women's reductions. Women's domestic work declines overall by 10 to 12 hours per week for those women who move into full-time employment, and by rather less for movements into part time employment. (The only equivalent finding in the literature comes from a methodological experiment in which 453 of the respondents to the 1971 Halifax Nova Scotia time Budget Survey, were reinterviewed in 1981. Elliott et al report changes in women's cooking time: movers from non-employment to employment had a reduction of 28 mins/day, while those moving out of employment had an increase of 20 minutes per day: numbers are small however and there is no information about husbands change in time use: Elliott, Harvey and Macdonald, 1986, Table 12: a somewhat similar comparison is also reported in Juster 1985). Altogether, the two parts of Table 6 tell us clearly that both partners are adjusting to some limited degree.

Table 6a Cross wave change in men's hours
change in husband's domestic work hours /week

	1985/6	1986/7	1987/8	1988/9
Grand Mean =	0	1	0	0
wives' emp change				
1 ft to ft	-1	0	1	0
2 ft to pt	-5	2	-1	0
3 ft to ne	0	0	0	-3
4 pt to ft	2	7	0	0
5 pt to pt	0	1	0	0
6 pt to ne	-2	-4	-2	-1
7 ne to ft	3	-2	5	6
8 ne to pt	0	1	1	2
9 ne to ne	0	0	0	0
husbands' emp change				
1 ft to ft	0	0	0	0
3 ft to ne	9	5	9	8
5 other	2	4	-4	-5
7 ne to ft	-8	-10	-10	-13
9 ne to ne	0	0	-1	1
age of youngest child				
0 no child	0	0	0	0
1 baby	2	6	4	4
2 aged 2-10	-1	0	0	0
3 aged 11-16	0	-1	0	0
respondent born				
before 1932	-1	0	2	-1
1932 - 1951	0	0	-1	0
after 1951	1	0	0	1
Multiple R Squared	0.031	0.04	0.037	0.043
Multiple R	0.176	0.199	0.192	0.207

Table 6b Cross wave change in women's hours
change in wives' domestic work time/week

	1985/6	1986/7	1987/8	1988/9
Grand Mean =	1	1	1	1
wives' emp change				
1 ft to ft	-1	0	2	0
2 ft to pt	6	9	-1	2
3 ft to ne	19	29	22	20
4 pt to ft	-8	4	-9	-9
5 pt to pt	-2	1	-2	1
6 pt to ne	2	5	10	10
7 ne to ft	-8	-14	-12	-14
8 ne to pt	-3	-7	-13	-10
9 ne to ne	1	-1	-1	0
husbands' emp change				
1 ft to ft	0	0	0	0
3 ft to ne	-2	-2	-4	-2
5 other	-3	3	2	5
7 ne to ft	3	5	0	1
9 ne to ne	-1	0	0	0
age of youngest child				
0 no child	0	-1	-1	-1
1 baby	19	23	24	22
2 aged 2-10	-3	-3	-2	-3
3 aged 11-16	-1	-1	-2	-2
respondent born				
before 1932	-1	1	1	0
1932 - 1951	-1	-1	0	-1
after 1951	3	0	0	1
Multiple R Squared	0.036	0.09	0.101	0.09
Multiple R	0.19	0.299	0.319	0.301

The numbers involved in some of the shifts in wives employment status are rather small. Table A1 shows only 100-150 wives move directly from non-employment to fulltime employment in any year for example (hence the somewhat unstable estimates that emerge). It may be that it would be more appropriate to pool the estimates for each pair of years, and present, rather than 4 separate models of 198m to 198n differences, one model of year p to year q differences. But on balance, the fact that some partial stability emerges from the separate models supports this approach. But as we move from considering first difference to second differences, the numbers become in some cases very small indeed. So Table 7, rather than giving separate estimates for the three possible three year sequences that can be estimated from the 1985 to 1989 domestic work data, instead adopts a "years p->q->r" modeling approach.

The modeling of second differences gives a quite unambiguous answer to the question of causal direction. However implausible the causal chain that runs from change in the domestic division of labour to change in employment status, an argument that relied on two successive

autonomous changes in dodl, in opposite directions, so as to lead to two successive changes in employment status, would verge on the preposterous.

Table 7 A 3 period sequence analysis

wife's 3 stage employment status	p domdiv	p->q	q->r	r domdiv	N
1) ft->ft->ft	0.71	0.00	-0.01	0.70	1326
2) ft->ft->ne	0.70	0.01	0.12	0.82	138
3) ft->ne->ft	0.72	0.11	-0.02	0.80	38
4) ft->ne->ne	0.68	0.12	-0.01	0.78	143
5) ne->ft->ft	0.68	-0.03	0.02	0.67	92
6) ne->ft->ne	0.74	-0.02	0.02	0.74	27
7) ne->ne->ft	0.63	-0.05	-0.05	0.53	81
8) ne->ne->ne	0.82	0.00	0.00	0.81	3434
					5279

Consider first the two extreme cases (1 and 8, respectively wife in full time employment and non employed in all three years): we see just the difference we would expect from the cross sectional evidence: a mean dodl index of 0.70 for the couples with employed wives, 0.81 for couples with non-employed plus a small change (a reduction of 0.01), in both cases, towards gender equalisation, representing a secular change in the society as a whole. The other cases show different sorts of employment change. Consider the monotonic employment changes (ie changes into or out of employment, cases 2,4,5,7): all show net (3 year) shifts of dodl in the expected directions. Next consider the diatonic employment changes (in-out-in or out-in-out, cases 3 and 6): these both show appropriate movements of dodl towards and away from gender equality. Of course the scales of changes are rather different in the various cases, reflecting a range of rather particular circumstances. Case 3 for example probably involves, in a majority of the 38 cases, the arrival of a first child in a case where the wife wishes to maintain her employment record -- whereas case 7, with direct entry by the wife to full-time employment after two years of non-employment, probably includes a number of couples with a well established long-term plan for the wife's re-integration into the longterm workforces. hence the overall virtually egalitarian division of domestic labour.

There is plainly a case for some serious modeling work on the analysis of second differences (though the numbers are perilously small even pooling 5 years of domestic work data). But Table 7 is sufficient for the limited purposes of this paper: there is clearly "adaptation" in dodl in response to the wife's employment change.

Conclusions

Emerging from the foregoing argument and evidence are three quite clear conclusions on the issue of change in the domestic division of labour.

1. There really is evidence of change in the division of domestic labour at the micro level of the couple; we can relate this systematically to changes in the partners' employment status, and we can plausibly infer causal direction from this evidence. It does appear that, in particular, couples' division of domestic labour adapts in response to the wife's change in employment status.

2. This change probably involves some process of rational choice undertaken by partners, since, at the margin, the changes in *dodl* are in the direction that would be predicted by a rational choice model. **But something more than just rational choice is involved** since the shifts in *dodl* are not anything like to the point of equality of domestic work even in cases where there is like a shift to near-equality in the spouses' employment statuses.
3. The inference must be that there is, in addition to the rational choice process, some further set of sociological and psychological processes, of the sort briefly summarised as the "lagged adaptation" model, which serve to resist or retard any rationally agreed redivision of domestic work.

There is a considerable way to go before we have an adequate understanding of this issue. The next steps are to build proper multistage models which establish the complex "causal chain" that connects households' distributions of paid and unpaid work, and then to integrate this with the more subjective and evaluative evidence on attitudes, aspirations and levels of attachment to the various different sorts of work. But the evidence provided here is certainly sufficient at least to establish the "lagged adaptation" model unambiguously as the starting point for future research in this field.

And apart from the particular issues connected to the academic study of the domestic division of labour, these discussions also point to some matters of rather more general concern:

The foregoing provides a good example of a problem which could not be solved using cross-sectional survey evidence, a problem that *in principle requires panel data* for its solution. The discussion of change in the domestic division of labour provides a very clear example of the need need for micro panel data, not just to indicate household dynamics, but also also *to provide more direct evidence of cause* -- good example of a case where evidence of change in behaviour at the individual level gives substantially more information than cross-sectional behavioural difference between people in different socio-economic positions.

And it makes an empirical point about the availability of a particular class of evidence for future analysis. This shows the usefulness of a new derived variable, the *dodl* index, which is closely associated with participation in paid employment. There are good theoretical reasons to expect this index to be strongly associated with men's and women's wage differentials and gender difference in patterns of cross-time wage change. The evidence here suggests a promising new line of research into causes of gender differentials in earnings, occupational mobility and attainment, and overall life chances

The division of domestic labour relates rather directly to a *major substantive issue of public policy*. Historically we have tried to explain gender differences in wages and career attainment in terms of discriminatory practices in the workplace. But, as a result of public regulation, such discrimination becomes less prevalent, and yet gender differences persist. It now becomes apparent that there may also be influences on these gender differences from the household: gender differentials in responsibility for housework and childcare inhibit women's post-education human capital formation relative to men -- the extra domestic responsibilities limit work experience and commitment -- which in turn limits women's career attainment. It may be that public policy as it influences the distribution of responsibility for domestic tasks (through childcare provision, tax and benefit structures, parental leave allowances, maximum work hours etc) may in the future have more impact on gender differentials than conventional equal opportunity intervention in the more public sphere of the labour market. Household panel

surveys such as the SOEP and the BHPS which contain evidence on the distribution of domestic work are provide uniquely important tools for research on these issues.

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Table A1 Sample Characteristics

longitudinal marriage/cohabitation					
	1984/5	1985/6	1986/7	1987/8	1988/9
stays without spouse	1902	1821	1754	1685	1598
acquired spouse	80	162	151	140	172
kept spouse	2603	2598	2691	2755	2841
changed spouse	2	3	1	3	1
lost spouse	81	84	71	85	56
Total	4668	4668	4668	4668	4668
longitudinal employment					
	1984/5	1985/6	1986/7	1987/8	1988/9
ft to ft	866	915	963	978	1042
ft to pt	46	52	47	53	56
ft to ne	82	101	113	126	103
pt to ft	54	55	45	58	63
pt to pt	296	318	346	403	395
pt to ne	61	122	60	80	103
ne to ft	137	105	121	114	149
ne to pt	152	78	143	100	131
ne to ne	2077	2110	2199	2293	2361
missing	897	812	631	463	265
Total	4668	4668	4668	4668	4668