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DEVELOPING A MULTINATIONAL TIME-BUDGET ARCHIVE

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A Report on a Study for the

European Foundation for the Improvement

of Living and Working Conditions.

CONTENTS

SUMMARY

Time-use has been the subject of academic study for most of this century. In recent years, however, this study has come to be of more than merely academic significance; the pressing public issues of the future of work and alternatives to employment, of the application and impact of the new Information Technologies, of sexual distinctions in the access to work and leisure, are all most helpfully approached through the analysis of time use patterns. This project was intended to provide the basis for an international collaboration in "time budget analysis", by constructing a multinational archive of comparative time use data.

The development of this Archive is now well underway. We have, so far, agreements to deposit fifteen time-budget surveys, from seven countries; seven of these surveys are already processed into a form suitable for comparative analysis. We have also, through the medium of a working group of the International Sociological Association, set up a mechanism by which new surveys may be added to the Archive as they are carried out. This report discusses the current world stock of time use information (Section 2), the alternative strategies for a multinational study of time use (Section 3), and considers (in Section 4) the sorts of time use evidence that could become available without the

development of an international archive. (Sections 1 to 4
incorporate the preliminary report to the European Foundation,
"International Time Use Comparisons", December 1984). Section 5
discusses the general nature of the scheme for a multinational
time budget data collection, and Section 6 outlines the system
for categorisations and coding of variables for surveys in the
Archive, providing a key to the codebooks of the first surveys
(which are attached to this report as Appendices). Sections 7
and 8 provide some examples of analysis (including a first look
at the issue of activities associated with the reduction of
working times), and Section 9 contains proposals for future work.

1. Why Study the Use of Time?

Time is the stuff of experience. All activities have position and duration; our natural accounts of our activities ultimately take the form of "time spent in this or that activity". So time use is potentially a sort of general social accounting tool, a numeraire for describing a society in much the same way that money may be used for describing the more limited economic subsystem. What is surprising is that this statement should be at all necessary: time use data (material from time budget surveys) is in fact among the less used of the social scientists' tools.

The current importance of studies of time use patterns does not however rest on this rather diffuse statement of time as an important sort of social indicator, time as a means of studying a range of disparate social phenomena. For a number of reasons, the use of time is now becoming itself the object of research. Time use patterns are now emerging as the subject of policy concern, for a range of public, corporate and private bodies. Let us consider what the interests of these bodies are.

First and most obvious is the interest in issues connected with the reduction of working time. For some this is a simple matter of job sharing: the reduction of working time leads, assuming

that the total amount of work remains constant, to an increase in
the number of jobs available. Calculations about these somewhat
straightforward consequences of the reduction of hours of work
obviously need some time use information. Much more interesting,
however, are the arguments emerging, for instance, from academic
supporters of the 1983 IG Metal strike in favour of shorter
working hours. These German economists argued that, as well as
job sharing, shorter hours of employment may also be actually
work generating. Their position relies on the fact that those
not working must be doing something with their time; the new
leisure activities encouraged by a reduction of work time
(without a proportionate decline in take-home pay) may be
expected to produce new employment opportunities in the service
industries and in those manufacturing industries ancillary to the
service sector. This then means a new focus for time use
research; finding the consequences of work-time reduction for the
pattern of non-work activities.

The second focus of policy concern has less pressing economic
importance, but has nevertheless a substantial social and ethical
significance. Women are in general in a disadvantaged position
in the money economy; they work, often in gender segregated jobs,
for less pay and with less hope of career advancement than their
male counterparts. One of the main explanations for this
disadvantaged status in the workplace is the nature of the sexual
division of labour within the household. Women bear the major

responsibility for the regular and routine domestic work tasks within the household irrespective of whether or not they also have paid work responsibilities. This means that women's total of paid plus unpaid (ie domestic) work tends to exceed men's. And the differential responsibility for the household means that women may be (or may be perceived as) less involved with their workplace responsibilities than men. Time use data (particularly concerning the allocation of time to domestic work within the household) are perhaps the most useful means for measuring these gender inequalities, and for observing their change over long periods.

A third focus of policy concern is rather more futurological. The new information technologies have so far made themselves felt mostly through changes in production processes. There have indeed been a few new products (pocket calculators, home computers) for which there were no market equivalents before the advent of microprocessor chips. But in the main the new technology has been used largely to make existing sorts of products more cheaply (and employing less labour). Nevertheless there is still hope that the new technologies will begin to have a substantial employment generation effect - when genuinely new markets for new products (information technology hardware and software) begin to emerge. But what are the new products to be? Many high technology firms hope for new markets emerging from households' use of IT to satisfy their needs for various sorts of

services - the development of tele-shopping, remote and
interactive educational, medical and social services, new forms
of entertainment and information services. A major application
of time use studies is the investigation of the way that
new-product-related activities may find their place in the daily
pattern of household activities.

2. The European Foundation Time Use Project.

The purpose of the European Foundation time use project is to organise a collection of data, an Archive, for a number of different countries, which may be used to throw light on these three policy question in particular, as well as providing some more general social accounting information. The established research instrument for time use study is the "time budget survey". Typically such surveys involve two parts: a conventional questionnaire covering both standard socio-demographic issues and more specialised geographical and other household information; and a diary (either for self-completion or completed by an interviewer) within which a detailed account of activities for a specified period (normally varying from a single day to a continuous week, or occasionally involving a series of widely separated days through a year) is entered.

This sort of research is enormously expensive. Sample sizes tend to be large, because of the wide scope for variation in lifestyle. The survey instruments tend to be cumbersome, because of the very large amount of contextuating information necessary to make sense of the diary material. And the process of coding the diary material - normally though not necessarily consisting of textual descriptions - and transfering it to machine-readable

form, is very labour intensive and time consuming. The limited
resources made available by the Foundation would certainly not be
sufficient to enable us to carry out any sort of new
multinational data collection. The last such multinational
time-use study was in fact carried out, under the auspices of
UNESCO, just about twenty years ago (Szalai 1973). But
individual national studies have been carried out by most
developed countries within the last decade, and in some cases two
or more such studies have been made. It was decided very early
in the planning of the Foundation exercise that, rather than
collecting our own data on a multinational basis, we would
attempt to construct a multinational survey retrospectively by
putting together existing surveys, or the results of existing
surveys, from a number of different countries.

Before describing how we have set about this task it may be
helpful to consider the reasons why we should wish to be involved
in multinational research in the field of time use. Quite apart
from the normal attractions of multinational intellectual
cooperation, there are some quite specific advantages at this
point in time. These relate to the previously mentioned small
scale of social science research. Though the history of this
field stretches back some sixty years, the activities during
these six decades may perhaps be best characterised as a series
of promising starts prematurely abandoned. The field has been a
graveyard of high expectations - practitioners have seldom if at

all been able to move from description of time use patterns to analysis of the causes and consequences of these patterns. Yet such analysis is now precisely what is required if we are to begin to answer the questions posed in the previous section.

The few experts in the field, and the (in absolute terms) small amount of time budget data available, are now under some pressure to make a scientific input to the solution of policy questions of the highes' possible importance. So the special reasons for a multinational approach to time use studies at this point in history come down to economies of scale. There is only a small pool of time budget researchers in any one country; bringing together researchers from a number of different countries may have the effect of providing a critical mass of intellectual effort from which some real advance may emerge. And making national data available to the international community enlarges every researcher's supply of evidence. It may also be helpful to add that while the diversity of instruments and survey techniques among the participating countries does cause some problems it also gives some very specific advantages. Each researcher is limited in the amount of information that can be collected in the questionaire ancillary to the diary; international collaboration means that the individual researcher has access to answers to questions (eg concerning possession of particular consumer durables or frequency of participation in activities during a year) that were excluded for reasons of space from his or her own survey, but which nevertheless appear in a survey from another country where a different choice of questionnaire items was made.

There are ~~ious ways in which the multinational comparative
exercise could be worked. The comparison could be operated at
the level of published or otherwise acquired results from
individual surveys. Or it could be operated through the
development of a common multinational comparative dataset -
bringing together the raw data into a single "lowest common
denominator" form for re-analysis. The former course of action
does have some advantages, and indeed some of this sort of work
has been carried out. Section 4 describes some of the results of
comparisons of time-use patterns in eleven different countries.
But, as we shall see, data in this form is not really a suitable
basis for answering the sorts of questions outlined in the first
section of this paper, nor is it an appropriate framework for
gaining the synergistic benefits of international cooperation.
So, in Section 5 we outline the structure of a new multinational
comparative data set. But first, Section 3 outlines the
international stock of time-budget material from which our
multinational comparative data is drawn.

3. An International Survey of Time Budget Material.

Tables 1 and 2 give some summary information about the international stock of time budget information. These tables are by no means comprehensive in their coverage; they exclude many "special purpose" time budget surveys (covering particular types of activity, such as transport or leisure, or particular occupational groups, such as teachers or managers). And they are probably not exhaustive; some important national surveys have doubtless been overlooked in the compilation of this present list. But even in this incomplete form the tables cover more than 50 surveys, for 29 countries. All of the major OECD states, and most of the Warsaw Pact economies, are included in the list.

Table 1.   Time_Use_Studies_in_Various_Countries

Country	Date	Sample	Ages	Days	Organisation
EEC					
Netherlands	1980	2700	12+	7	Soc. Cult. Planbu
	1975	1300	12+	7	Soc. Cult. Planbu
Belgium	1965	2100	18-65	1	Univ. Brussels
France	1984/5	20000*	*	1/7	INSEE
	1974/5	6650	18+	1	INSEE
	1967	2868	18-65	1/7	INSEE
	1966	2802	18-65	1/7	INSEE
	1963/4	696	"Adult"	1	CES
	1958	2900	<47, F	1	INED
	1947	1800	<47, F	1	INED
West Germany	1979/80	4000	14+	1	EMNID
	1979	3000	16+	1	Hamburg CC
	1965	2500	18+	1	U. Koln, Munster
Denmark	1975	3700	16+	1	N. Inst. Soc. Res
	1961		16+	1	N. Inst. Soc. Res
U.K.	1983/4	10000	14+	1	BBC
	1983/4	1300	14+	7	SPRU, ESRC

	1981	1200	14+	7	Scot. Count. Comm
	1974/5	3500	16+	7	BBC
	1971	700	25-45	4	Inst. Comm. Stud.
	1961	2700	14+	7	BBC/SPRU
	1938	700	"Adult"	1	Mass Obs./SPRU
Italy	1979	3900	All	1	CNR, U. of Turin
	1973	3000	14+	1	U. of Rome

Other Europe _____

Austria	1981	22000	19+	1	Cent. Stat. Off.
Switzerland	1979	45000	14+	1	Fed. Stat. Off.
Norway	1980/1	5205	16-74	2/3	Cent. Bu. Stat.
	1971/2	3000	16-74	2/3	Cent. Bu. Stat.
Finland	1979	7355	10-64	2	Cent. Stat. Off.
Sweden	1981/2	3500	9-79	1	Swed. Broad. Corp.

Eastern Europe _____

Poland	1978				Inst. Phil. Soc.
	1965				
East Germany	1965		18-65	1	

Czechoslovakia	1979/80	35000	15-69	1	Inst. Phil. Soc.
	1965		18-65	1	
Hungary	1976/7	27600	15-69	4	Cent. Stat. Off.
	1965		18-65	1	Hung. Stat. Off.
	1963	12000	18-59	1	Hung. Cent. Off.
Yugoslavia	1965		18-65	1	
Bulgaria	1976/7				Bulg. Acad. Sci.
	1970/1				Bulg. Ac. Sci.
Soviet Union	1980	2000	18+	1	Inst. Soc. Res.

Far East _____

South Korea	1981	3365	5+	7	KBS, [U. of Seoul]
Japan	1980	54500	>10	1	NHK
	1975	30000	>10	1	NHK
	1970	34000	>10	1	NHK
	1965	24300	>10	1	NHK
	1960	170000	>10	1	NHK

North America _____

Canada	1981	2700	18+	1	Statistics Canada
	1971				

USA	1975/6	2400	18+	1-4	SRC, U. Michigan
	1965		18+	1	SRC, U. Michigan

Near East

Israel	1970	3700	18+	1	Hebrew U.

Table 2   Reference_Material_on_Time_Budget_Surveys.

Country	Date	References
EEC		
Netherlands	1980	Knulst and Schoonderwoerd (1983)
	1975	Knulst (1977)
Belgium	1965	Szalai (1973), Javeau (1970)
France	1984/5	Roy (1984)
	1974/5	Lemel (1976), Fouquet and Chadeau (1981), Roy (1984)
	1967	Lemel (1972, 1974), Goguel (1966)
	1966	Goguel (1966)
	1963/4	Guilbert, Lowit and Creuzen (1965)
	1958	Girard (1958),Girard and Bastide (1959)
	1947	Stoetzel (1948)
West Germany	79/80	EMNID
	1979	Dangschat et al (1982)
	1965	U. Koln and Munster
Denmark	1975	Madsen (1966)
	1961	Madsen (1967)
U.K.	1983/4	BBC (1984)

	1983/4	Gershuny and Miles (1984)
	1981	CCS (1982), Gershuny and Thomas (1985)
	1974/5	BBC (1978), Gershuny and Thomas (1983)
	1971	Young and Willmott (1973).
	1961	BBC (1965), Gershuny and Thomas (1981)
	1938	Thomas, Zmroczek (1983),Gershuny (1983)
Italy	1979	Belloni (1984)
	1973	Grazia-Rezi (1974)

Other Europe _____

Austria	1981	Cent. Stat. Off.

Switzerland	1979	Fed. Stat. Off.

Norway	1980/1	Lingsom and Ellingsaeter (1983)
	1971/2	Lingsom (1975)

Finland	1979	Niemi et. al. (1981), Niemi (1983)

Sweden	1981/2	Sveriges Radio (1982), Gahlin (1983)

Eastern Europe _____

Poland	1978	Inst. Phil. Soc.
	1965	

East Germany	1965	Szalai (1973)

Czechoslovakia 1979/80 Federal Statistical Office (Undated)

            1965

Hungary   1976/7 Andorka and Falussy (1982)

             1965   Szalai (1973)

             1963   Ferge (1965)

Yugoslavia   1965   Szalai (1973)

Bulgaria   1976/7 Staikov (Undated)

             1970/1 Staykov (1978)

Soviet Union 1980   Inst. Soc. Res.

Far East   _____

South Korea 1981   KBS, [U. of Seoul]

Japan   1980   Nakanishi (1982)

             1975   NHK (1976)

             1970   NHK (1971)

             1965   Nakanishi (1966)

             1960   Nakanishi (1963)

North America _____

Canada   1981   Kinsley and O'Donell (1983)

1971

USA   1975/6 Robinson (1978)

                       1965   Robinson and Converse (1973)

Near East   _____

Israel   1970   Katz and Gurevitch (1976)

While this is a very large amount of information, it does not
necessarily provide a very substantial basis for multinational
comparative research. There is no standard form for a time
budget survey; it might be helpful to consider the various ways
in which the design of a time budget survey may vary:

1)   It will vary according to the nature of the population
     from which the sample is drawn. Most surveys (though
     not all - see Belloni, 1984) place a lower age limit,
     and some an upper age limit for their respondents. Some
     restrict their coverage by other demographic criteria,
     by, for example, sex (Stoetzel 1948), or marital status
     (Young and Willmott 1973). Others still are restricted
     by the geographical region they cover (eg Staikov, no
     date).

2)   Variation according to the sampling methodology also
     introduces complications for international comparative
     purposes. The very substance of a time budget survey is
     the nature of the respondents' activity patterns - and
     the nature of the individual's activity patterns
     determines his or her availability to complete the
     survey instrument. The effect of non-response bias in
     these surveys may then be be assumed to vary according
     to the sampling methods (eg quota sampling involving
     knocking on doors in a specified area will produce a
     larger proportion of "stay-at-home" respondents than
     will a more classical postal-addressed based probability
     sampling procedure).

3)   There is wide scope for variation in the design of the
      time-use diary. Activity categories can be precoded,
      either with a relatively small set of activities (eg
      Sweden 1981/2) or with a very large number of precoded
      activities (the Netherlands 1980 survey had more than
      200) - or the activity coding may be left open. The
      time intervals for recording activities may be left open
      (as in the "start time, activity, start time, activity"
      format of 1960s UNESCO multinational study), they may be
      fixed as units of 5, 15 or 30 minutes (or combinations
      of these at different times of the day), they may be
      recorded at random instants (as in the "beeper" studies
      recorded in Robinson 1978), or they may be set against a
      time grid (the diaries used in the NHK Japanese surveys
      are particularly attractive examples of this last format
      - which is unfortunately best suited to the compact
      orthography of ideographic text). The single day
      interviewer-aided recall format (the "yesterday" diary)
      is the most common, but seven-day self-completion is
      also widely used, and some of the French studies combine
      a detailed one day with a less detailed seven day
      structure.

4)   The activity classification schemes themselves vary very
      considerably, and this must be a major stumbling block
      for comparative work. However, one lasting consequence

of the UNESCO work of the 1960s is that the 100-activity categorisation used by its participants has become generally accepted as at least a starting point for the development of new activity coding schemes. Most of the modern surveys pay at least token respect to an unspoken principle that new coding structures should be at some level compatible with the Szalai activity set. Surveys also differ with respect to the possibility of multiple codings for simultaneously occuring activities, and for the opportunity for recording the spatial location of the activity, and the company of other people in the activity.

5)   The demographic and other questionnaire information ancillary to the diary instrument varies very widely. There are a few variables (age, sex, family status, household composition, years of full-time education) which are both obvious candidates for inclusion in the questionnaire, and readily coded in a way which enables comparisons with other surveys. There are other variables (eg occupation, social class, educational status, geographical location of home) which are obvious candidates, but without readily available coding systems which make international comparisons easy. And there is a very wide range of other variables which might be included either because of some special subject of

interest (eg accessibility of sports or cultural facilities) or because of a particular framework of explanation for activity patterns (eg mothers' employment history as explanation of daughters' employment status). As previously noted this last source of diversity may be a strength as well as a weakness in comparative research.

The large number of surveys included in Tables 1 and 2 might potentially be used for comparative purposes in a range of different ways. Each of the listed surveys have some published results. In principle it would be possible simply to use a collection of the published tabulations from each survey as a basis for a comparison of time allocation patterns, their change over historical periods, and their variation as between countries ("Strategy 1"). But this procedure would be subject to almost all of the problems listed above. The variation in the age ranges covered (see column 4 in Table 1), and the differences in the geographical coverage of the surveys (some of those listed are entirely urban samples) would mean that we could not tell what part of the variation in time use is due to country differences and what part to population. And the great variety of different meanings attached to such commonplace terms as "at work" or "doing housework" would in any case render any comparisons rather less than meaningful.

A second approach ("Strategy 2") would be to identify the current
community of time use researchers with current access to raw
national data, whose data is of sufficient quality (ie
sufficiently detailed activity coding and adequate
socio-demographic information), and to request that they compile
special-purpose tables, well specified as to the detail of
population coverage, and the inclusiveness of activity
categories.   Table 3 lists the national surveys which might in
principle be expected to be included in such an exercise.

Table 3.   "Strategy_2"_Surveys

Netherlands 1980	France 1974/5
Denmark 1975	UK 1983/4
Italy 1979	Austria 1981
Switzerland 1979	Norway 1980/1
Finland 1979	Hungary 1976/7
Japan 1980	Canada 1981
USA 1975/6	

Further information might reveal that other national data sources (particularly those in Eastern Europe) might be added to this list. This does leave us with a minimum of fifteen countries as candidates for a "Strategy 2" multinational comparison. And indeed researchers in eleven of these countries have agreed to take part in such an exercise (described in Robinson, 1984); some of its findings are reviewed in the next section.

But the "Strategy 2" approach is less than satisfactory. Answering the sorts of questions outlined in Section 1 of this paper requires that we improve our fundamental understanding of the determinants of time use patterns. Once we have established and well-founded hypotheses about the determinants of time use, then we may be in a position to specify a small number of standard tables which cast light on our policy problems. The standard tables discussed in the following section are not very illuminating. For the moment we need, not the international time-use accounts that would emerge from "Strategy 2", but rather a multinational data set that the researchers can interact with in an exploratory mode. This gives us two further options: we can can reprocess existing national survey material from different countries into a common set of categories, so as to approximate to a multinational study (Strategy 3); or we can form an international research consortium, and specify common standards for a new and properly multinational comparative dataset (Strategy 4). And in fact, both of these courses of

action are now under way: Sections 5 to 7 of this paper describe
the Strategy 3 exercise initiated by the European Foundation; and
this research is being conducted in parallel with a Strategy 4
exercise under the aegis of the International Sociological
Association (described in Harvey 1985).

4.   Time Use in Eleven Countries: Some Illustrative Examples

Figure 1 shows an overall picture of the allocation of time, in
the eleven participating countries, to four basic categories of
activities. Tables giving a more detailed account of leisure
activities in these 11 countries may be found in Robinson (1984)
which is the source for Figures 1 to 8. The category "sleep"
includes also other personal care activities, such as washing,
dressing, and non-sociable eating. "Paid work" also includes travel
to work and other activities ancillary to employment such as
changing into work clothes. "Domestic Work" includes childcare,
shopping, domestic paperwork and household (and vehicle maintenance.
"Leisure" is the residual category; the four categories together
sum to the 24 hours of the average day for each country.

Figure 1

National Average Division of Time.

AUSTRIA 1981			

CANADA 1981			

DENMARK 1975			

FINLAND 1979			

FRANCE 1974-5			

JAPAN 1976			

NETHERLANDS 1980			

NORWAY 1971-2			

SWITZERLAND 1979			

UNITED KINGDOM 1974-5			

UNITED STATES 1975			

sleep	paid	dom	leis

The four categories have been quite tightly specified. Yet the differences between the various countries are striking. Finland has a little less, and France rather more, than the average amount of sleep. Japan appears to have three times more paid work than the Netherlands, and correspondingly less leisure. What construction can we put on these differences?

In principle there are three possible sources of variation:

1) There may be differences related to the method of data collection - particular sectors of the population may be disproportionately represented in the national samples, for example, or differences in the designs of the diaries may lead to differences in the pattern of non-response bias between the countries.

2) There may be real differences in the proportions of the population falling into those particular categories which, on the basis of prior theory or evidence developed from national data, we expect to determine time allocation patterns. National differences in the proportion of women in paid employment, for example, would lead to differences in the balance between paid and unpaid work, even if the various national samples were otherwise equivalent in terms of such characteristics as age, sex, social class, household composition etc. So international variation in aggregate time use statistics may reflect differences in socio-economic structure.

3)   Suppose, however that we have reweighted the national

      samples so as to dispose of variation due to the

      socio-economic and demographic factors that can be

      identified on a national basis - and there still remains

      some variation in aggregate time use patterns. These

      ar. ʿre genuine national time use differences, due to

      history, or culture, or current circumstances. They are

      national differences in the consequences of social

      structural variables - we might think of these as

      international differences in socio-economic processes.

Some of the national differences in Figure 1 will certainly be
traceable to the sorts of methodological inconsistencies which
fall under the first of these explanations. It is, among other
concerns, the likelihood of this sort of inconsistency, that
leads us to reject "Strategy 1"-type international comparative
work from previously prepared time use material. The essence of
Strategy 2 is to use nationally-based knowledge of the
socio-economic and demographic variables which determine time-use
patterns to specify a set of tables which minimise the variation
due to both the first and second of these explanations, so that
the remaining international variation reflects the genuine
national differences in time use patterns and socio-economic
processes.   (To get a little ahead of the narrative, it is the
exploration of these differences that is the purpose of Strategy
3; and it is here that multinational research transcends the
capabilities of national.)

So how well does the Strategy 2 approach cope with the variation
we find in Figure 1? Let us take for example the aggregated
"leisure" category. National studies show that sex and
employment status are both important determinants of the total
amount of leisure time. Figure 2 shows the total of leisure time
for men, broken down by various employment statuses, for the six
out of our set of eleven Strategy 2 countries who were able to
supply this data.

Figure 2

Men's Weekly Leisure Time: Various Occupational Categories

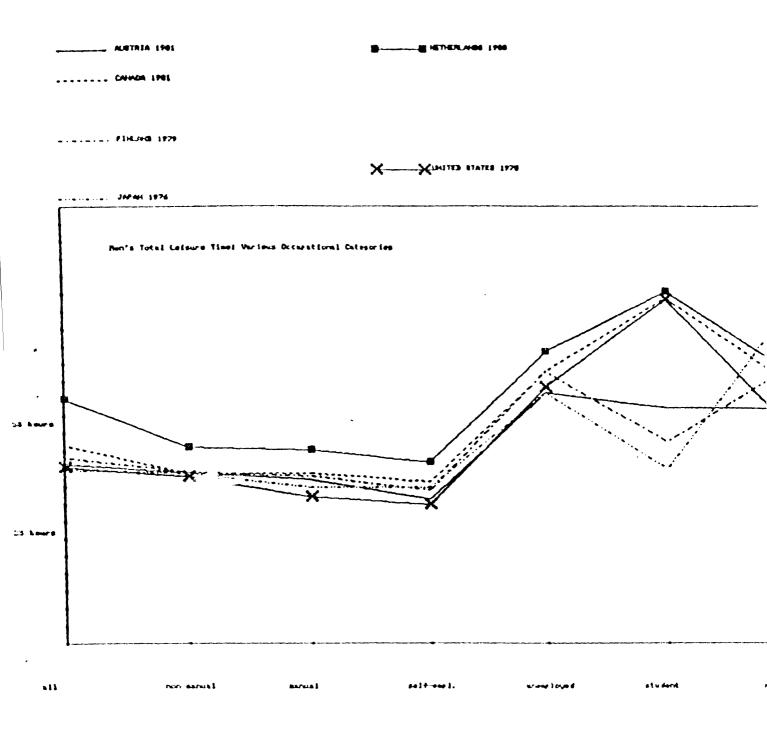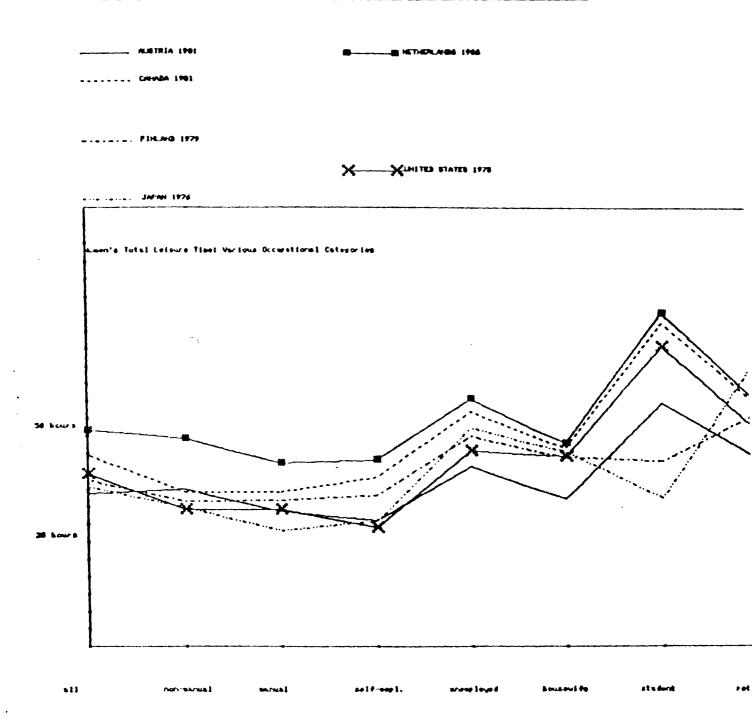**Figure 3**

Women's Weekly Leisure Time: Various Occupational Categories

———————— AUSTRIA 1981   ■————————■ NETHERLANDS 1986

———————— CANADA 1981

—·—·—·—· FINLAND 1979

X————X UNITED STATES 1975

—·—·—·—· JAPAN 1976

Women's Total Leisure Time: Various Occupational Categories

all   non-manual   manual   self-empl.   unemployed   housewife   student   ret

It is immediately clear that there is a strong cross-national similarity among these six countries. The Netherlands still emerges as the most leisured society, with something like an hour per day of extra leisure time in most of the main occupational categories. But the other countries in general cluster rather closely together. And most important, the relative positions of the various occupational groups are, with two exceptions, constant for all of the countries. Manual employees seem to have slightly more leisure than the self-employed, and non-manual employees to have slightly more leisure than the manual. The unemployed, unsurprisingly, all have more leisure time than any of the employed groups. For men in the workforce, then, we can say that employment status has a strong and internationally consistent effect on leisure time.

But for the remaining categories, the consistency is less marked. Students in the Netherlands, the USA and in Canada, all seem to have more leisure than even the unemployed (a total of about eighty hours per week). Students in Austria, by contrast, seem to have slightly less leisure than the unemployed, while those in Finland and Japan have hardly more than adults in employment. This contrast may be an example of a "social process" difference. Students in Finland and Japan may find themselves under much more pressure for success than those in the USA, the Netherlands and Canada. However it is also possible that this difference reflects either a bias in the sampling procedure, or a difference
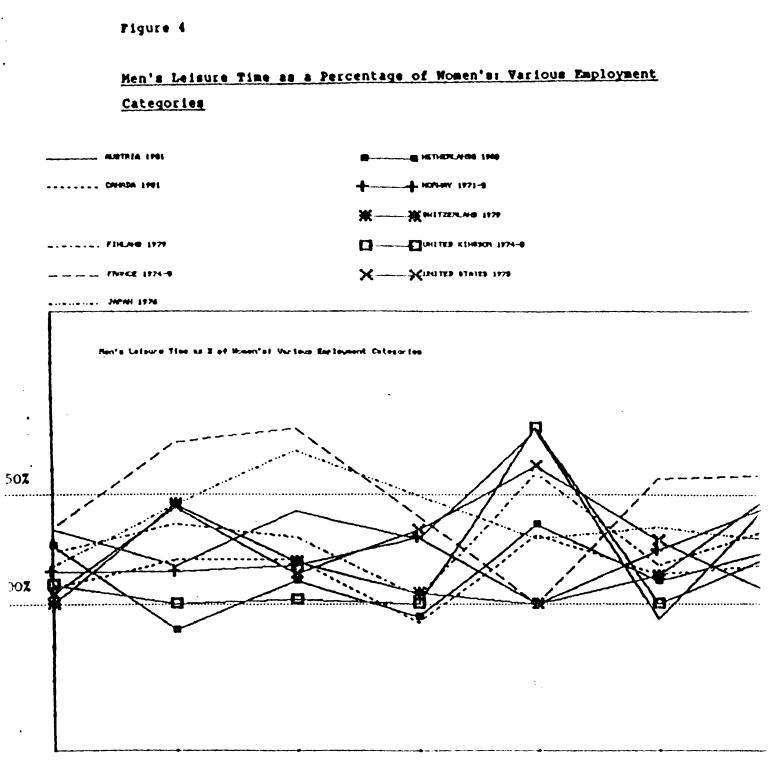
in the inclusiveness of the term "student". Similarly, it seems likely that the variation in the total amount of leisure time for retired men reflects differences in age-related sampling biases rather than genuine social processual differences.

Let us now turn to the equivalent evidence about women's time use (Figure 3). The general shape of the relationships is other similar - with the unemployed having rather more leisure than the employed, and with the same contrast between North American students on one hand, and Finish and Japanese on the other. But some of the differences are instructive. If we compare them employment category by employment category, men have systematically more leisure time than women. So as we might have expected on the basis of the national evidence, sex is an important structural variable; but though the <u>direction</u> of the sex effect is constant (ie men having more leisure time than women), the scale of the effect is not constant. Another readily visible difference between Figures 2 and 3 is that the men's leisure time aggregates for each occupational category seem to show more cross-national similarities than do the women's. A small part of this difference may be explained by the fact that the exclusively female membership of the housewife category leads to a smaller number of women (and hence higher standard errors of the means) in the employed categories. But most of this <u>may</u> be a genuine international difference in the nature of the division of work between men and women.

Figure 4 takes the data from Figures 2 and 3, expressing, for
each occupational category, men's weekly leisure time as a
percentage of women's. A certain regularity does emerge from
this analysis: in almost every case the male leisure is
substantially higher than the female. But notice the contrast
between this figure and the two preceeding ones. In the two
preceeding cases, while there were clear national differences,
there were also similarities; while the absolute mean values for
the categories certainly differed, there were nevertheless
international similarities in the patterns of relation among the
various nations' occupational categories. In Figures 2 and 3 we
have telegraph lines, lines running for the most part in parallel
across the graph; Figure 4, by contrast, is irregular, with lines
running in contrary directions, and frequently crossing each
other.

Figure 4

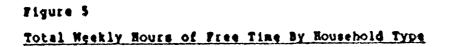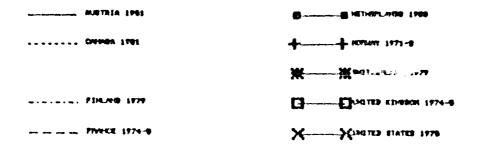## Men's Leisure Time as a Percentage of Women's: Various Employment Categories

Men's Leisure Time as % of Women's: Various Employment Categories

Figure 5

Total Weekly Hours of Free Time By Household Type

Total Hours of Free Time by Household Type

Figure 6

Total Weekly Hours of Free Time by Age Group

Consider, for example, the "non-manual employees" category. In the UK and the Netherlands, men and women in this occupational group have about the same amount of leisure time. Men in the same group in the USA, Switzerland and Japan however have about 50% more leisure time than women in equivalent jobs; while non-manual employed French men seem to have 80% more leisure time than equivalently employed French women. The variation appears even more extreme for manual employees, and hardly less extreme for the self-employed. We may suspect that part of the variation in the unemployed and retired categories reflects cross-national differences in the sampling biases in the various surveys; nevertheless, the data as presented shows a reversal in the international patterns of inequality. The UK, which is consistently among the lower levels of gender inequality for the employed groups, becomes, with Norway, the most unequal in its sexual division of leisure time for the unemployed (unemployed UK men have more than 80% more leisure then unemployed women); France, consistently among the most unequal for the employed, becomes just about the most equitable in its division of leisure time for the unemployed. It is tempting to speculate on the reasons for these international differences; for present purposes, however we need only note that these international differences in the sexual division of leisure time will clearly repay some further research work.

So far we have sex and employment status as common international determinants of time use patterns. There is however still some remaining cross-national variation in total leisure time even when we control for these variables. Let us briefly consider two other variables: household type and age. Household types have been divided into four groups: "type 1" households are two person households with no children, "type 2" consist of two adults plus children, "type 3" consist of single individuals, while "type 4" are single adults plus one or more children. Figure 5 shows the total amount of free time available to adult members of each of these types of houshold in nine countries. Again we find some considerable national variations, Holland, with the most leisure overall, having something like three hours more leisure time per day than France, which is the least leisured.

But within these rather large national differences, we also find some quite unmistakeable national similarities. The four household types have a more or less constant cross-sectional relationship within each country. In all cases except Norway, children seem to reduce the amount of leisure time available both to single-adult and to multiple-adult households. And in all cases except the USA, the single-adult-no-children households have more leisure time than the two-adult-plus children households.

A similar blend of cross-national differences and similarities
emerges for the relationship of leisure time to age (Figure 6).
There is (since the population is identical) the same three hours
of leisure per day gap between France and Holland. But
nevertheless, the cross-sectional relationships are very regular.
In all cases there is a "U shaped" evolution of leisure time
through successive age cohorts. In most cases, leisure time
decreases monotonically to the 35-44 age cohort, and subsequently
increases regularly to the 65+ age groups (the two exceptions are
France and Switzerland where the 25-34 cohort have the least
leisure).

What emerges from this brief discussion is that the availability
of leisure time in a wide range of developed countries does seem
to be affected by a common set of social structural variables.
The same social structural variables will serve as explanations
for time spent in a number of more detailed leisure activities
(see for example Figures 7 and 8), and for the amounts of time
spent in paid and unpaid work. It is however also clear that a
substantial proportion of the variation in time use patterns
remains unexplained by this set of social structural variables.
How much of the variance remains to be explained? And how do we
set about explaining this remaining variance? The answers to
these questions require that we move from a "Strategy 2" to a
"Strategy 3" approach.

Figure 7

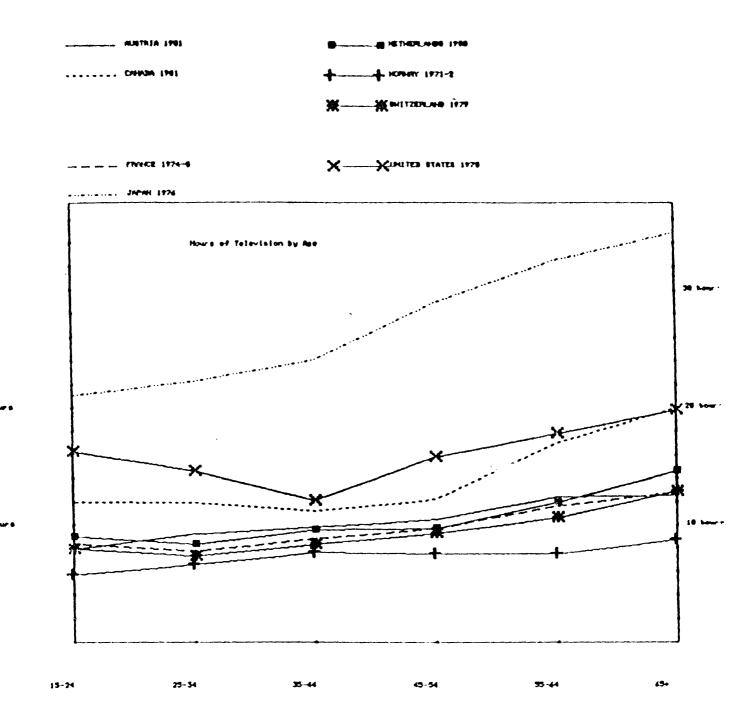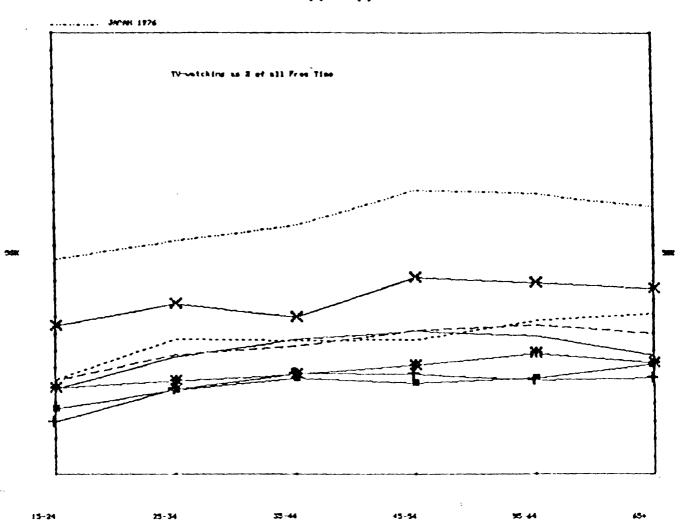**Weekly Hours of Television Watching by Age**

Hours of Television by Age

15-24   25-34   35-44   45-54   55-64   65+

Figure 8

Television Watching as a Proportion of All Free Time: By Age.

TV-watching as % of all Free Time

5. A Multinational Comparative Dataset.

The discussions in the previous section should draw the reader's attention to some of the shortcomings of the "Strategy 2" approach. It is difficult to specify tables of sufficient complexity to control for all the social structural variables which constitute the common multinational explanatory model for variation in time allocation patterns. The brief outline in Section 4 suggests that each time use category would need to be broken down across at least four basic variables (sex, employment status, household status, age - and probably in addition occupational status and educational level) together with some interaction variables (eg sex/employment status combinations) - in order to identify adequately the structural similarities between the countries. The difficulties encountered in abstracting even the one- or two-independent-variable breakdowns on which the Figures in Section 4 were based suggest that this much more complex task is to be avoided if possible.

Even if these tabulations were accessible, it would still not be possible to calculate exactly how much of the overall variation in time allocation was explained by the structural variables. (Though if the national tables of mean time use broken down by the structural variables were accompanied by information about the "between" and "within" variances for time use variables this

calculation would be possible.) And experience suggests that any given set of breakdowns of the time use variables immediately gives rise to speculations as to the explanation of any remaining unexplained cross-national differences. So the initially simple "Strategy 2"-type appeal for a well-specified set of time use breakdowns from colleagues in a dozen different countries, very quickly escalates into a quite unmanageable iteration of increasingly complex and unintelligible demands for ever more obscure statistics - and one might expect, ever decreasing levels of cooperation from the initially well-disposed colleagues.

On these grounds alone, we might wish to argue for the "Strategy 3" approach, attempting to put together a multinational collection of raw data, to avoid the increasingly demanding process described above. But in fact there is a much stronger reason. Consider the sorts of "explanation" for time allocation patterns described above, in the context of the time allocation issues raised in the first section of this paper - the consequences of shorter working time, change in the sexual division of labour, the development of new patterns of time use as a result of new technological possibilities. Certainly there is a sense in which age and sex and occupation and so on determine time use patterns. But this is merely cause in the "positivist" sense - a strong statistical association between a presumed "independent" and an assumed "dependent" variable. In fact gender does not itself really "cause" behaviour, any more than occupation or age or family circumstances do. These are merely intermediate variables in rather complex causal processes.

The sorts of models most commonly used in the analysis of time
budget data involve the use of social structural variables to
"explain" time allocation patterns, rather in the manner of the
preceding section. These models work adequately where we are
concerned simply to describe behaviour. But the questions
outlined in the first section of this paper call for more than
just description. They ask in effect for predictions: "what
would be the time-use consequences of this policy, of that new
mode of service provision? To answer such question, it will be
necessary to move forward from the traditional, variance
explaining, positivist models, to the development of models which
involve some of real processes whereby activity patterns are
determined. We need to develop models which mirror the complex
interactions of spatio-temporal constraints, social norms, legal
requirements and personal expectations which actually determine
our patterns of time use. Such models are now in their very
early stages of development (e.g. Jones, 1983). But they are a
long way off at present.

So perhaps even more important than international comparison of
data, may be the international collaboration of experts, in the
development of a new generation of time use models. The
"Strategy 3" approach outlined in the next section is intended to
promote both goals.

The essence of the exercise is simply to bring together a number
of different national datasets, translate them and their
codebooks into a single language (English), make them available
on one computer software package (SPSS/SPSSX), and reduce them to
a common comparative format. One additional constraint has been
adopted: data has been drawn, in the first instance, from
countries in which there exist more than one comparable dataset.
This for two reasons: it enables us to compare "longitudinal"
changes_over_historical_time against "cross-sectional"
differences_between_countries; and it may also allows us to
compare changes over time cross-nationally (which may cancel out
the effects of national differences in coding systems.

Rather than a single and finite exercise of comparison, the
European Foundation project is viewed as an open-ended process of
research cooperation. It has, so far, four collaborating
countries within the EEC, and three from outside; the
Netherlands, Denmark, the UK, France, Norway, Canada, and the USA
will all contribute material. Table 4 sets out the surveys which
will eventually be included in this exercise.

Table 4. "Strategy_3"_Countries

Agreed to participate:

Netherlands	1975, 1980, (planned 1985)
Denmark	1961, 1975
UK	1961, 1974/5, 1983/4
France	1965, 1975*, (planned 1985)
Norway	1971, 1980
Canada	1971, 1981
USA	1965, 1975*, (Planned mid-1980s)

* indicates data-sets not yet received.

The Canadian and Norwegian data and the earlier material from France and the USA were only finally received during September 1985, and the later French and US material has has not yet been submitted. So only the material from the Netherlands, Denmark and the UK has been processed; the full data set (other than the material from the three planned 1985 surveys) will be ready by mid 1986.

This exercise is being conducted in parallel with a Strategy 4
project coordinated by Prof. Andrew Harvey of Dalhousie
University, on behalf of the Time Budgets Working Group of the
International Sociological Association. The TBWG is developing a
set of "lowest common denominator" standards for the design and
coding of time budget surveys; the European Foundation data set
will constitute the historical record of time budget material, to
be continuously extended by the addition of new material
collected according to the TBWG protocols.

6. The European Foundation Archive

[This and the following sections will be updated as additional
material becomes available].

The work carried out on each survey in the dataset follows a
natural sequence, from the initial translation of the codebook
into English, through the cleaning and mounting of the data, to
the transformation of the diary material. This last process is
the crucial element of the current project.

The essential characteristic of a time budget survey is the
collection of material about the sequence of activities during
one or more days. We have already seen (in Section 3) that the
diaries may be collected in a wide range of different formats.
But irrespective of the differences, the central structure, the
record of a sequence of events with their temporal locations, is
common to all time budget surveys, and it is this that makes the
current comparative exercise possible.

There are a number of different possible ways of handling this
data. It is possible to use the material directly in its
initial, sequential form, so that the data tape consists of an
ordered set of activities, together with the times of their
occurence. Analyses have in the past been carried out from this
sort of material; for example Berk and Berk (1979) in the USA

have used such a dataset to explore model "production sequences"
for domestic services; and this is the normal basis for the
analysis of "viewer availability", as carried out by such
organisations as the BBC.

It would have been possible in principle to prepare each dataset
in such a sequential form. Diaries recorded with variable length
time slots (ie in the form "start time / activity / finish time")
can be distributed into a sequence of fixed intervals (of five or
fifteen minutes duration). Diaries lasting longer than one day
can be divided into multiple single-day diaries. And indeed
there may in the longer term be some reason for developing this
sort of dataset: in the final section we shall see that some of
the more promising future lines of analysis require data
organised in this manner. But for a number of reasons we decided
against preparing a comparative dataset of this sort at this
point in the project. The great bulk of current time-use
analysis looks at "aggregated" data (ie total amounts of time
spent in particular activities rather than the sequential
occurrence of activities). Most of the standard analyses use this
sort of data, so there is comparatively little software available
for handling the sequential data. And since the whole purpose of
the exercise is to extend and consolidate an international
community of researchers, it seemed most sensible to start with
the data in the form most widely used by the current
international community.

So the data was "decommutated", transforming the sequence of activities in the original diary into a set of totals of time spent in each of a set of activity categories. Since some of the surveys covered just one day, while others cover a full week, the total time in each activity has been recorded in the form of "minutes per average day"; since a record of the day of the week that the diary was kept has been preserved in the one-day diary surveys, it becomes possible to compare the one day diaries with the week diaries by a relatively straightforward weighting procedure. There should of course be a total of 1440 minutes in each average day; unfortunately some diaries cover less than 24 hours - the Danish and the earlier UK surveys for instance miss 3 and 6.5 hours respectively in the middle of the night. To cope with this we have simply added the equivalent number of minutes to the totals in the sleep category. This is misleading, because of insomnia, shift work, late night TV viewing etc, but with care in analysis most of these problems can be avoided. (For example, most surveys contain a variable indicating :. 'her the respondent is a shift-worker; activity times can be calculated excluding night-shift workers, so as to estimate the effect of the attribution of the missing night-hours to sleep.)

The activity categories vary between each survey, and between each country. In many cases the activity classifications used in the surveys bear a family resemblance to the activity categories of the 1960s UNESCO survey. But even in these cases, the special

interests of the national sponsor lead to detailed changes which
mean small inconsistencies between the daughter classification
and its parent. And often (as with the Danish, and the
BBC-derived British surveys) there is not even this residual
familial similarity. So we have, perforce, adopted a rather
permissive approach to the activity classification, with a
forty-activity list, which aggregates up further to an
eight-category activity categorisation. Our intention is to
attempt to aggregate the sequences of activities in the surveys
to the forty-category level, but recognising that in some
surveys, some of the more detailed categories will have to be
grouped together. Table 5 gives the activity classifications
that we have adopted as our norm, while Table 6 shows the actual
groupings of activities available for each survey.

Table 5.   The_Eight_and_Forty-category_Activity_Lists.

A.___Formal_Work.

  1) At Work   2) Work at home

) Second Job   4) School/Classes

  5) Travel to/from Work

B.__Domestic_Work

  6) Cooking/Washing up   7) Housework

  8) Odd Jobs   9) Gardening

  10) Shopping   11)Child Care

  12) Domestic Travel

C.___Personal_Care

  13) Dressing/Toilet   14) Personal Services

  15) Meals/Snacks   16) Sleep/Naps

D._Outdoor_Leisure

  17) Leisure Travel   18) Excursions

  19) Playing Sport   20) Watching Sport

  21) Walks

E._Civic_Activities

22) At Church   23) Civic Organisations

F.   Out-of-Home Leisure

24) Cinema/Theatre   25) Dance/Party etc.

26) Social Clubs   27) Pubs

28) Restaurants   29) Visiting Friends

G.   Passive Leisure

30) Listening to Radio   31) Watching TV

32) Listening to Music

H. Other Home Leisure

33) Study   34) Reading Books

35) Reading Papers/Magazines   36) Relaxing

37) Conversation   38) Entertaining Friends

39) Knitting/Sewing   40) Pastimes/Hobbies

I.   No Information

Table 6. Activity Coding in Participating Countries.

	UK '61,'75, '84	NETH '75, '80		DANISH '64	'75
FORMAL WORK					
At work	AV1	A1	Paid work	T0T19	T0T19
Work at home	AV2	A2	Paid work at home	T0T6	T0T6
Second job	AV3	A3		-	-
School/classes	AV4	A4		-	T0T24
Travel to/from work	AV5	A5	Travel in general	TRAVEL	T0T20
DOMESTIC WORK					
Cooking, washing up	AV6	A6	Housework	(T0T4	(T0T4
Housework	AV7	A7		(T0T4	(T0T4
Odd jobs	AV8	A8	Other practical work	-	T0T5
Gardening	AV9	A9	Gardening	-	T0T35
Shopping	AV10	A10	Shopping	T0T23	T0T23
			Errands		T0T22
Childcare	AV11	A11	Collecting children	-	T0T21
Domestic travel	AV12	A12		-	-
PERSONAL CARE					
Dressing, toilet	AV13	A13	Dressing, etc.	(T0T2	(T0T2
Personal services	AV14	A14		(T0T2	(T0T2
Meals, snacks	AV15	A15	Eating, drinking	T0T3	T0T3
Sleep	AV16	A16	Sleeping	T0T1	T0T1
OUTDOOR LEISURE					
Leisure travel	AV17	A17		-	-
Excursions	AV18	A18	Excursions	EXCURS	
			Library		T0T26
			Cultural interests		T0T28
Playing sport	AV19	A19	Play or watch sport	(SPORTS	(T0T30
Watching sport	AV20	A20		(SPORTS	(T0T30
Walks	AV21	A21	Walks	-	T0T31
CIVIC ACTIVITIES					
Church	AV22	A22	Church	-	T0T27
Civic organisations	AV23	A23	Meetings	-	T0T29
OUT-OF-HOME LEISURE					
Cinema, theatre	AV24	A24	Theatre, cinema	T0T25	T0T25
Dance, party, etc.	AV25	A25	Entertainment,restaurant	(T0T34	(T0T34
Social club	AV26	A26		(T0T34	(T0T34
Pubs	AV27	A27		(T0T34	(T0T34
Restaurant	AV28	A28		(T0T34	(T0T34
Visiting friends	AV29	A29	Visiting people	VISITS	
			Visiting family		T0T32
			Visiting non-family		T0T33
			Other out-of-home activities	T0T36	T0T36

PASSIVE LEISURE

Listening to the radio	AV30	A30	Listening to the radio	(TVRAD	TOT11
Watching television	AV31	A31	Watching television	(TVRAD	TOT12
Listening to music	AV32	A32	Listening to music	-	TOT10

OTHER HOME LEISURE

Study	AV33	A33	Home study	TOT7	TOT7
Reading books	AV34	A34	Reading non-newspaper	(READNG	TOT9
Reading papers,magazines	AV35	A35	Reading papers	(READNG	TOT10
Relaxing	AV36	A36	Resting	-	TOT17
Conversation	AV37	A37	Together with near family	-	TOT13
Entertaining friends	AV38	A38	Entertaining guests	GUESTS	
			Family guests		TOT14
			Other guests		TOT15
Knitting, sewing	AV39	A39			-
Pastimes and hobbies	AV40	A40		TOT16	TOT16
			Other at-home activities	TOT36	TOT36

OTHER

No information	AV41	A41			
Total time		TOT	Total time	TTIME	TTIME

The UK and the Dutch surveys correspond quite closely. For some purposes it will be possible to use some of the more detailed 40-activity categories for comparison between these countries. (It might also be worth mentioning at this point that since the raw data is also maintained in the European Foundation Archive, it would also be possible to carry out pairwise comparisons between countries at the original, much more detailed 100 - 200 activity classification level.) The Danish surveys, by contrast, have much less detail than is normal (because of their "precoded activity" format), and have been made to correspond at the eight, but not the forty-activity level. (In fact the three out-of-home leisure activity categories, "outdoor", "civic", and "other out-of-home", have proved difficult to manage: we are considering merging the civic category with the other out-of-home.)

The business of matching activity categories between surveys raises an issue of principle which has yet to be resolved. The European Foundation dataset is comparative in two quite different senses. It is comparative across nations, and it is also comparative across time. And this gives two different, and to some extent conflicting, criteria for developing activity classifications. Let us illustrate the problem through the Danish example. The 1961 Danish survey had only a total of 19 distinct activities, where the 1975 Danish survey had 35 different activity categories. The Danish case as a whole is thus only comparable with the general data set at the 8 category

level - whereas the Danish 1975 survey could for most purposes be
set against the UK 1974/5 and the Dutch 1975 surveys at the
40-category level. For the moment, and for the sake of
simplicity, we have adopted the former procedure, with just one,
lowest-common-denominator, activity classification for each
country. But as this project developes, it may well become
advantageous to maintain the archive in a more complex form, so
as to allow different levels of detail of comparison for
different subsets of the surveys.

Alongside the "what were you doing?" questions that are the
centre of any time budget survey, diaries often ask for
information about "other activities", about the location of
activities, and about other people present or participating in
the activities. With the same motive of keeping the data as
simple as possible, we have also decided not to maintain any
other diary information in the European Foundation Archive for
the present. (Though again this decision may be reversed at a
later date.)

The diary-based activity material itself is only a part of the
data included in time budget surveys. There are four other
general categories of information.

Most closely similar to the diary material, is questionnaire
evidence about activity patterns. Diaries cover only one day, or
one week, yet activities recur in individuals' lives in cycles
which might have a periodicity of a few days, a week, several
weeks, or several months. So the picture of daily life which
emerges from the diaries is in one respect a misleading one; it
shows the individual respondent participating in only a subset of
his or her full range of activities. For this reason, time
budget diary data is frequently accompanied by additional
questionnaire evidence about longer term activity patterns.
Single day diaries are difficult to use unless they are
associated with information about the number of hours spent in
paid work during the diary week. 7-day diaries are also usefully
augmented by information about the respondents' frequency of
participation in various sorts of recreational and sports
activities.

Table 7. Ancillary Information in the Seven Surveys

DUTCH 1975, 1980 Surveys, codebook analysis

    SPSSX system file NETHX

1) Demographic variables:

Sex	C135
Age or agegroup	C136
Personal status	C142
Social economic class	C190
Whether in full-time education	C153
Present and expected level of educational attainment	C154 to C161
Respondent's position within the family	C138
Family structure	C139, C196
Total size of family or household	C191
No. of people over 12 yrs; over 7 yrs	C137
Number of children	C192
Age of the youngest child	C194
Age of the oldest child	C195
Number of lodgers	C193
Whether the respondent is the main wage earner for the household	C162, C163
Work pattern of MWE	C171 to C173
Educational background of MWE	C174 to C180
Work pattern of husband or wife, if any	C164 to C170
Employment status and profession of HoH	C143, C144
Work pattern of HoH	C145 to C147
No. of days holiday per year	C148

2) Housing variables:

Type of housing	C185
Degree of urbanisation	C186
Size of municipality	C187
Province	C188
Second home	C222
Access to weekend cottage	C221
Type of garden	C134
Own allotment	C133
Accessability of local public transport, long-distance public transport	C229 C230
Whether respondent is always able to drive	C228
Location of shops (various types)	C15 to C21
Availability of various consumer durables, e.g a fridge, washing machine, car, bicycle or caravan, camera, VCR, audio tape-recorder, gramaphone, sewing machine	C197 to C220
No. of TV sets and reception of various television channels	C1 to C8

3) Questionnaire reported activities:

Frequencies of respondent's visits to various out-of-home leisure facilities - e.g theatre, cinema, snackbar, restuarant, dance, museum, etc., and their general location	C28 to C43
How long since the respondent last read a book	C26, C27
Whether the respondent watches TV news and documentary programmes, and how often	C9, C10
Whether the respondent listens to radio news bulletins; is a radio in use	C11 to C13
Respondent's sporting activities	C44 to C74
Respondent's musical activities	C75 to C87
Respondent's hobbies	C89 to C121
Participation in community life	C122 to C132
Respondent's religious activity	C181 to C184
Who usually manages the HH's finances, does domestic jobs, handles the shopping	C140, C141, C22 to C25
Domestic jobs: context	C88
Whether the respondent's workplace varies, usual commuting time to and from work, whether home for lunch, time ordinarily arrives home after work	C149 C150, C151 C152 C153
Working status each day Sunday to Saturday	C232 to C238
Whether respondent has paid domestic help	C223

4) Time budget diary activities:

Aggregated activities, 40 categories	A1 to A40
Aggregated time unaccounted for in diary	A41
Aggregated total time accounted for	TOT
Aggregated activities, 8 categories	PAIDAV, DOMAV PERSAV, OUTDRAV CIVICAV, AWAYAV PASSAV, MLESAV

5) Attitudes:

Respondent's political preference	C231

6) Interview data variables:

Diary keeping week	C189

DANISH 1964   codebook analysis

SPSSX system file DANISHX

1) Demographic variables:

Survey identifier	SURVEY
Geocode	OV4
Household number	OV5
Respondent number	OV6
Sex	SEX
Age	AGE
Civil status	CIVSTAT, OV11
Relationship with householder	RELHH, OV27
Composition of household	FAMCOMP, OV25
Number of children in family	KIDS
Employment category	JOBTYPE, OV16
Occupational category	OCCSECT, OV14
Industry respondent is employed in	OV18
Whether respondent has a second job	SECJOB, OV19
Gross income 1964-1965	OV21
Price-index plan	OV22
Pension plan (1)	OV23
Pension plan (2)	OV24
Number of people in household	OV28
Number of children under 15 and over 7	OV30

2) Household variables:

Type of dwelling	OV29
Television set owned by household	OV49
Years television set has been owned	OV51
Number of radios in the house	OV68
Type of radios	OV69, OV70

3) Questionnaire reported activities:

Hours per week worked on main job	OV17
Hours per week worked on sideline	OV20
Church attendance	OV37
Free time, in hours per average weekday	OV38
Time spent reading for pleasure	OV39
Adult education courses	OV48
Frequencies with which respondent	
participated in: reading newspapers,	QPAPERS
entertaining at home, visiting others,	QGUESTS, QVISITS
visits to the cinema, theatre, opera,	QCINEMA,QTHEATRE, QOPERA
concerts, sporting occasions,	QCONCERT, QSPORT
museums or art exhibitions,	QART,
club or organisational meetings.	QMEETS
Changes in respondent's interest in TV	OV53
Hours per day spent watching TV	OV54
Previous use of time now spent on TV	OV55
Interest in a range of TV programmes	OV56 to OV67

Interest in a range of radio programmes   OV71 to OV76
Whether respondent listens to the radio
    during television broadcasting hours   OV77

4) Time budget diary activities:

Aggregated activities, diary categories   TOT1 to MSCENT
Aggregated activities, 8 categories   PAIDAV, DOMAV
                                           PERSAV, OUTDRAV
                                           CIVICAV, AWAYAV
                                           PASSAV, HLESAV

5) Attitudes:

Respondents were asked to agree or   ATT1 TO A1T6
disagree with a series of statements,
such as: 'I often feel lonely',
'I dislike much of my work but have
to earn a living,' and 'I can't do
much about today's important problems'.

6) Interview data variables:

Diary day (i.e. Sunday to Saturday)   WEEKDAY
Date of interview   OV283
Month of interview   OV284

DANISH 1975   codebook analysis

SPSSX systems file DANISHX

1) Demographic variables:

Survey identifier	SURVEY
Sex	SEX
Age	AGE
Civil status	CIVSTAT
Year of birth	NV14, NV339
Whether underage	NV337
Social status	NV89
Relationship with the head of house	RELHH
Occupational sector	NV90, OCCSECT
Type of employment	JOBCAT, JOBTYPE
	NV90 to NV93,
	NV15,NV101,NV338
Secondary jobs	NV97, NV102
	SECJOB
Number of days holiday per year	NV261
Education	NV104 to NV108
	NV138 to NV144
Church membership	NV229,NV230,NV232
Membership of various kinds of association	NV246 to NV253,
	N'°°°
Respondent's gross and net income	NV109,110
Family's gross and net income	NV111,NV112
Number in family	NV11, NV19
Number of children	KIDS
Number under 18 years	NV12
Number under 16 years	NV20
Number in employment	NV21
Number of incomes	NV113
Number of wage earners	NV22
Family structure	NV23, FAMCOMP
Respondent's position in the family	NV24
Data was also collected on the sex,	NV16 to NV18,
year of birth and employment of many	NV25 to NV87
other members of the family and	
of the household, including the HOH,	
the person lived with, parents and	
grandparents, and up to 7 children.	

2) Housing variables:

Type of dwelling	NV114
Degree of urbanisation	NV115
Size of local community	NV116
EBA local authority code	NV330
Whether the household possessed	NV212 to NV214
a tape-recorder or gramaphone	
Approx. number of books owned by	NV225
the family	

3) Questionnaire reported activities:

Frequencies with which respondent
participated in: reading newspapers,   QPAPERS
entertaining at home, visiting others,   QGUESTS, QVISITS
visits to the cinema, theatre, opera,   QCINEMA,QTHEATRE,
     QOPERA

concerts, sporting occasions,	QCONCERT, QSPORT
museums or art exhibitions,	QART,
club or organisational meetings.	QMEETS
Main method of transport	NV136
Education since leaving school	NV138 to NV144, NV228
Repairs or improvements carried out on the family dwelling in the last year	NV145 to NV147
Questions about the kinds of political TV programmes watched in the last month	NV148 to NV153
Whether the respondent had discussed the programmes with various people	NV154 to NV161
Frequency with which various other kinds of programme were watched	NV163 to NV176
How often radio news and regional programmes were listened to	NV177, NV178
Whether the respondent regularly visits	NV181,
sick or old people, helps the neighbours,	NV182
looks after grandchildren,	NV183
or takes part in the work of associations	NV184
Usual activity on weekday evenings	NV185
When the respondent last went to the cinema, and how that film was chosen	NV186, NV187
Whether the respondent has ever been to	NV188 to NV201
a theatre to see a play, ballet, opera, etc. and if not, why not	NV202
Theatre club member	NV203
Interest in art and attendance at art exhibitions and museums that season	NV233 to NV236
Visits that season to other museums	NV237
Musical events attended in the last year (folk, jazz, pop)	NV205 to NV207
Whether the respondent sings or plays, and on which instrument	NV208, NV209
How often various newspapers are read	NV217 to NV221
Use of public libraries	NV222 to NV224
Type of book currently being read	NV226, NV227
Church attendance	NV231
Sports practiced in the last year	NV238 to NV240
Type and timing of main holiday	NV241, NV242
Frequency of visits to other people,	NV243
guests entertained in the home	NV244
Frequency of visits to or from the family	NV245
No. of association meetings attended in the last month	NV254

4) Time budget diary activities:

Aggregated activities, original categories	TOT1 to MSCENT
Aggregated activities, 8 categories	PAIDAV, DOMAV PERSAV, OUTDRAV

CIVICAV, AWAYAV
PASSAV, HLESAV

5) Attitudes:

Respondents were asked to agree or   ATT1 to ATT6
  disagree with a series of six statements
  (identical with those used in
  the Danish 1964 Leisure Survey)
Rating the pleasure (or otherwise) of   NV137
  normal travel
Whether the respondent usually feels tired NV258 to NV260
  or bright, or often feels stressed; and
  the main source of stress
The respondents were also asked whether   NV262
  they would prefer more free time or higher
  pay at work, and their preferred form if   NV263
  they were offered more free time

6) Interview data variables:

Diary day (i.e. Sunday to Saturday)   WEEKDAY
Sample batch 1 or 2   NV340, NV341
Number of visits, the time and date of   NV117 to NV135
  up to three visits, whether anybody else
  was present, whether there were
  difficulties, and the general result.

UK 1961 codebook analysis

SPSSX system file BBC6175

1) Demographic variables:

Case identification number	ID
Survey identification	SURVEY
Sex	SEX
BBC social grade	GRADE
Age in four groups	AGEGP6
School leaving age	SLV6
Occupation type	OCCUP6
BBC family type - includes age of youngest child	YCHILD6

2) Household variables:

Whether radio or television broadcasts were available within the household	MEDIA6

3) Questionnaire reported activities:

4) Time budget diary activities:

Aggregate activities in 40 categories	AV1 to AV40
Aggregate activities in 8 categories	PAIDAV, DOMAV
	PERSAV, OUTDRAV
	CIVICAV, AWAYAV
	PASSAV, HLESAV

5) Attitudes:

6) Interview data variables:

UK 1975 codebook analysis

SPSSX system file BBC6175

1) Demographic variables:

Case identification number	ID
Survey identification	SURVEY
Sex	SEX
BBC social grade	GRADE
Age	AGE7
School leaving age	SLV7
Family occupational status (i.e. social class)	FOS7
Age of youngest child (grouped)	YCHILD7
Respondent's position within the household	HHPOS7
Relationship to the HoH (part 1)	HHREL17
Relationship to the HoH (part 2)	HHREL27
Type of household	HHTYPE7
Level of economic activity	ECONACT7
Employment of other family members	FAMEMP7
Unusual working hours	SHIFT7
Civil status	MARRY7

2) Household variables:

Location, by BBC broadcast regions	REGION7

3) Questionnaire reported activities:

4) Time budget diary activities:

Aggregate activities in 40 categories	AV1 to AV40
Aggregate activities in 8 categories	PAIDAV, DOMAV
	PERSAV, OUTDRAV
	CIVICAV, ʌ⸱ ⸱AV
	PASSAV, HLESAV

5) Attitudes

6) Interview data variables:

UK 1984 codebook analysis

SPSSX system file TTB84A

1) Demographic variables:

Sex	DEM112
Age	DEM111
Marital status	DEM116
Family unit	DEM114
Relationship to interview respondent	DEM113
Age at end of full-time education	DEM118
Pre-school attendance	DEM115
Whether a householder	DEM117
No. of people in household	DEM47
Household income	DEM52
Respondent's occupational classification	DEM145 to DEM147
Respondent's employment status	DEM136
Whether the respondent has ever had	DEM139
a paid job, and, if applicable,	DEM140
how long respondent has been unemployed	
Hours normally worked	DEM137
Shift work	DEM138
No. of people supervised by resp. ·	DEM141
No. of people at workplace	DEM142
Whether selfemployed	DEM143
Type of employing organisation	DEM144

2) Housing variables:

How long at that address	DEM14
How long in that area	DEM15
Type of dwelling	DEM16
Type of tenure	DEM17
Furnished or unfurnished	DEM18
Type of landlord	DEM19
No. of rooms	DEM20
Use of kitchen (shared or not), phone, workroom and garden	DEM21 to DEM25
Whether the household owns various consumer durables e.g. freezer, washing machine, VCR, hifi or stereo, home computer, camping equipment	DEM53 to DEM67
Whether a newspaper is delivered	DEM26
How far it is to the shops, the usual mode of travel and travel time to get there	DEM93 to DEM95
How far to a doctor	DEM97
How far the respondent has to travel to work, the usual mode of travel, and usual travel time	DEM148 to DEM150

3) Questionnaire reported activity:

Who usually does various household chores	DEM83 to DEM92

e.g. shopping, cleaning, washing dishes,
washing and ironing clothes, cooking,
gardening, repairs, bed-making

Help, paid or unpaid, with various tasks e.g. housework, child minding, nursing, gardening, shopping	DEM68 to DEM82
Whether the respondent can drive a car	DEM133
and ride a motorbike or bicycle	DEM134, DEM135
Whether respondent has a usual pub	DEM96
Whether respondent usually buys a paper	DEM27
Whether the respondent suffered from any of a variety of minor ailments in the last week e.g. headaches, flu,	DEM162 to DEM168
and if so whether they cut down on the respondent's normal activities or caused the respondent to stay in bed more	DEM169, DEM170
Whether the respondent suffers from any chronic illness, and if so whether it limits the respondent's activities	DEM171, DEM172
How often the respondent: uses a library, does DIY and car maintenance, gardens, plays team or other sports or indoor games, goes to a pub or club, educational classes, or a political meeting, visits museums etc., eats out, has people to a meal at home, goes to a cinema or a theatre or concert, knits or sews, brews beer or makes wine, sees a doctor, applies for a job, · goes to church, talks over problems, does the household shopping, or does oddjobs for love or money	DEM175 to DEM202

4) Time budget diary activities:

Aggregated activities, 40 categories	AVE1 to AVE40
Aggregated total time accounted for	TOT
Aggregated activities, 8 categories	PAIDAV, DOMAV PERSAV, OUTAV CIVAV, OHLAV PASSAV, HLESAV

5) Attitudes:

Whether resp. is happy with own health	DEM173
Whether resp. is happy with own life	DEM174

6) Interview data variables:

Length of questionnaire interview	DEM103
Interview day of the month	DEM104
Interview month	DEM105
How interesting the diary had been	DEM203
Diary-filling minutes per day	DEM204

As Table 7 makes clear, the different surveys contain very different sorts of information in the "questionnaire-based activity indicators" category. Some surveys contain no such information (UK 1961), others contain a great deal of data on participation in activities, but relatively little on the frequency of participation (the Dutch material). Evidently much of the material in this field will be of limited use for comparative purposes. But it will nevertheless be valuable to the international research collaboration insofar as the very different sorts of questions in the various surveys offer a very wide range of possibilities for analysis - a range much broader than could be achieved from any single survey instrument.

To make any sense of the diary material, it is also necessary to collect information about the personal characteristics of the respondents. Some of the variables which fall under this heading are common to all the surveys - age, sex, employment status, civil status (ie single/married/divorced/widowed) and the number of people in the household. And these have natural codings which make them easy to compare across surveys. Some other important categories of the respondents, while they are regularly recorded, do not have any natural system of classification, so occupation, educational qualifications, and position in the household, are rather difficult to compare between surveys, and particularly difficult to compare between countries.

Another class of information concerns the household_equipment_and
other_material_characteristics. One of the major applications of
time budget surveys is in the calculation of the value of
household production; for this purpose it is helpful to know the
extent of the household's endowment with different sorts of
equipment. The extent of this information varies considerably
between the surveys. Also falling within this general category
of information is the nature of the housing itself - size, number
of rooms, facilities - and the household's geographical
situation, the distance from schools, workplaces, shops, cinemas
and so on.

And finally, several of the surveys contain attitude
questionnaire data, concerning feelings about particular sorts of
activity, reactions to the task of completing the diary, or more
general questions which may be used to construct indices of
well-being, life-satisfaction or good health. These are in
general not comparable between surveys, but have again been left
in the Archive material, on the grounds that they add to the
variety of material available to the community of researchers.

For the moment the variable names and orderings for each survey
in the Archive have been left as near to those in the original
national form as is possible. Tables 6 and 7 may therefor be
used as a key to the codebooks for the individual surveys, which
are attached to this Report as Appendices. But in the next phase
we hope to develope a single system of classification for the
variables, intended to be be homogeneous across surveys and
participating countries.

7. Examples of Analysis: Demographic Characteristics and Activity Patterns.

To resume Section 5: as of September 1985 the European Foundation Time Budget Archive has seven active surveys covering Denmark, Holland and the UK. Tapes containing six more surveys (for Norway, France, Canada and the USA) h̄ave now arrived and are being processed; and more surveys are promised - one each from France, Canada and the USA. Thus the examples of analysis in this and the following section are drawn from rather less than half of the material that will shortly become available.

In Section 4 we saw from the "Strategy 2" comparisons that sex, employment status, family status and age were all important determinants of activity patterns - and that these characteristics seemed to have roughly similar effects in each country. We are now in a position to examine this proposition more formally. Table 8 provides a number of statistics from an analysis of variance of six main activity categories ("out of home leisure" in this table comprises the three categories "outdoor', "civic" and "other out of home" in Table 6). For each category of activity, the table provides a simple Eta statistic for each of the four demographic characteristics, to serve as an indicator of their relative importance in determining the amount of time devoted to that activity; and a Multiple R-squared

statistic indicating the proportion of total variation in the
time use categories explained collectively by the four
demographic characteristics. (Statistics not significant at the
.05 level are placed in parentheses.)

Table 8 Analysis_of_variance_in_the_seven_surveys

(Simple eta statistics and multiple R^2)

SOURCES OF VARIATION

	NETHERLANDS		DENMARK		BRITAIN		
	1975	1980	1964	1975	1961	1975	1983
PAID WORK							
SEX	.55	.60	.22	.31	.56	.55	.28
EMPLOY. STATUS	.72	.68	.53	.58	.95	.82	.79
FAMILY STATUS	.14	.09	.05	(.09)	(.07)	.17	
AGE	.30	.27	.30	.40	.37	(.25)	.44
R SQUARED	.64	.64			.90	.68	.71
DOMESTIC WORK							
SEX	.60	.62	.52	.48	.64	.65	.44
EMPLOY. STATUS	.47	.42	.32	.37	.77	.78	.49
FAMILY STATUS	.27	.33	.19	.16	.25	.25	
AGE	.35	.52	.21	.16	.30	.29	.42
R SQUARED	.54	.65			.74	.71	.54
PERSONAL CARE							
SEX	(.15)	(.15)	.06	(.08)	.21	.14	(.07)
EMPLOY. STATUS	.33	.31	.26	.26	.44	.23	.38
FAMILY STATUS	.11	.18	.02	(.06)	(.07)	.05	
AGE	.20	.20	.30	.29	.27	.16	.30
R SQUARED	.14	.13			.23	.08	.18
OUT OF HOME LEISURE							
SEX	.07	.07	.05	(.01)	.04	.09	.09
EMPLOY. STATUS	.06	(.05)	(.02)	(.04)	.05	(.15)	(.09)
FAMILY STATUS	.15	(.08)	.11	.09	.16	(.04)	
AGE	.21	.22	.12	.16	.26	.32	.22
R SQUARED	.07	.05			.01	.11	.06
RADIO AND TV							
SEX	.18	.29	.12	.02	.09	.09	.24
EMPLOY. STATUS	.17	.19	.13	.16	.17	.16	.30
FAMILY STATUS	.12	.17	.06	(.06)	(.09)	(.03)	
AGE	.23	.18	.22	.24	.27	.19	(.22)
R SQUARED	.12	.14			.11	.07	.17
OTHER HOME LEISURE							
SEX	(.09)	.11	.06	.03	.14	(.17)	(.12)
EMPLOY. STATUS	.28	.30	.20	.28	.39	.34	.39
FAMILY STATUS	(.11)	.14	.08	.09	(.09)	.10	
AGE	.21	.17	.14	.25	.33	.25	.36
R SQUARED	.11	.12			.20	.15	.21
ALL LEISURE							
SEX	.10	.13	.10	.00	.02	.04	.15
EMPLOY. STATUS	.30	.29	.24	.33	.40	.32	.47
FAMILY STATUS	.21	.27	.19	.19	.24	.12	
AGE	.31	.32	.22	.26	.42	.29	.42
R SQUARED	.21	.22			.34	.20	.33

The activities fall into three groups. First, the two work
categories, which both show very high levels of explanation from
the four demographic variables. To some extent the explanation
is circular: after all "employment status" might be expected to
serve as a good predictor of hours of paid work. But in fact
even if we remove the employment status variable, the remaining
three demographic variables still serve to explain half to
two-thirds of the variation in paid work time. It does also
appear that the collective performance of the four variables in
explaining variation in paid work time has been declining over
the last two decades. In the case of domestic work time, again,
more than half of all the variation may be attributed these four
characteristics.

Second, "personal care", which includes sleep, washing, dressing
and eating, shows a very low level of explanation by the set of
four independent variables. But as we shall see in a moment
there is in relatively little variation overall in this category,
sleep time being almost constant across groups, and we may
presume that any variation is due more to physiological than
social or economic variables.

And third, there are the leisure categories. The three
individual categories again show very low levels of explanation
from the four demographic variables. But consider: we have
already found high levels of explanation for the work category,

and that time devoted to personal care is approximately constant
across groups. The total of leisure time is the residual, and we
might expect that the high level of explanation of variance in
work time will be mirrored by a similar level of explanation of
total leisure time. So, while the particular sorts of leisure
have only very weak correlations with the socio-demographic
categories, leisure as a whole shows rather stronger
correlations.

Overall, the analysis of variance statistics in Table 8 show a
reasonably strong degree of similarity between surveys within the
same country, and a fair degree of similarity between countries.
Both in the work categories, where the Eta statistics are high,
and in the other categories where the Etas are rather low, the
individual demographic characteristics are seen to have a rather
similar order-of-magnitude of effect in each survey and in each
country.

The analysis of variance statistics tell us simply the strength
of the relationships between the sociodemographic variables and
the time use variables. The statistics in Table 9 give us the
beginings of a picture of the nature of the relationships. Table
9 shows "effect parameters" - more specifically, unadjusted
coefficients from a multiple classification analysis. For each
time-use category, we see first the overall sample mean for each
survey, and then the "effect" of belonging to each category. So

for example, we start with a sample average of 219 minutes per day devoted to domestic work in Holland in 1975, and we find that the "effect" of being a man is -116 minutes per day, which means that the average time spent by Dutch men in domestic work in 1975 was 103 minutes (ie 219-116), whereas the average time spent by Dutch women was 303 minutes (219+84). (The coefficients presented here are "unadjusted" with respect to the other sociodemographic variables - that is to say, we cannot add together the effects of a sex and an employment category from Table 9 to obtain the group mean for a particular sex/employment subgroup; but the results discussed in the following paragraphs would be hardly affected if Table 9 gave the equivalent "adjusted" effect parameters.)

Table 9 MCA deviations from the mean, 3 country comparison.

		Unadjusted PAID WORK			Unadjusted DOMESTIC WORK			Unadjusted PERSONAL CARE		
		1960s	1970s	1980s	1960s	1970s	1980s	1960s	1970s	1980s
MEAN	Netherlands		164	165		219	226		653	649
	Denmark	247	245		152	134			463	
	Britain	262	254	216	209	188	210	658	660	653
SEX										
MEN	N		118	131		-116	-129		-15	-15
	D	59	84		-92	-71		9	-12	
	B	131	109	61	-118	-103	-78	-31	-10	-8
WOMEN	N		-85	-82		84	83		11	10
	D	-59	-85		92	73		-9	12	
	B	-119	-102	-45	105	96	59	10	16	6
EMPLOYMENT STATUS										
FT	N		186	185		-108	-110		-39	-38
	D	144	158		-57	-57		-39	-38	
	B	185	167	169	-118	-105	-89	-31	-25	-34
PT	N		-39	-34		62	74		-6	-4
	D		-17			60			-7	
	B	-92	-67	-45	69	41	89	41	20	0
UNEMP	N		-164	-87		-25	-33		61	-18
	D									
	B		-229	-192		-27	-3		82	75
WOMEN	N		-94	-77		56	38		20	19
	D	-144	-180		57	50		39	47	
	B	-257	-244	-143	161	163	77	38	26	28
FAMILY STATUS (AGE OF YOUNGEST CHILDREN)										
NONE	N		-25	-1		-1	96		3	-41
	D	-13	-18		-33	-18		3	7	
	B	10			-34			3	-	
<5	N		-14	-22		62	73		-14	15
	D	13	33		33	33		-3	-13	
	B	-32	-55		69	60		3	5	
5-14	N		20	6		-31	-27		12	11
	D									
	B	-1	18		38	-12		-11	1	
Older	N		42	16		-64	-55		-1	8
	D									
	B		24			-36			-5	

		Unadjusted — AWAY FROM HOME LEISURE			Unadjusted — RADIO AND TELEVISION			Unadjusted — OTHER HOME LEISURE			Unadjusted — ALL LEISURE		
		1960s	1970s	1980s	1960s	1970s	1980s	1960s	1970s	1980s	1960s	1970s	1980s
AGE													
12-24	N		64	67		-93	-135		9	22			
	D	88	83		-49	-39		-28	-40				
	B	116	55	65	-117	-82		3	6				
25-49	N		0	-20		43	60		-14	-12			
	D	26	72		53	19		-31	-33				
	B	9	-8	34	35	30		-7	-1				
50-64	N		-51	-57		8	21		16	7			
	D	16	22		10	9		9	-2				
	B	1	-1	3	3	10		-11	-10				
65 (	N		-148	-164		7	20		45	48			
	D	-130	-176		13	11		67	76				
	B	-211	-209	-205	26	32		60	51				
MEAN	Netherlands		135	122		98	95		185	184		418	400
	Denmark	92	132		175	109		143	174		409	417	
	Britain	76	119	96	149	132	158	86	90	121	311	339	383
SEX													
MEN	N		7	6		15	22		-9	-12		13	17
	D	-8	3		18	2		11	-5		21	0	
	B	4	8	10	10	9	26	-11	-13	-12	2	4	22
WOMEN	N		-5	-4		-11	-14		7	7		-9	-11
	D	8	-3		-18	-2		-11	5		-21	0	
	B	-2	-8	-8	-9	-8	-19	10	12	9	-2	-4	-17
EMPLOYMENT STATUS													
FT	N		-3	-4		-4	6		-32	-38		-39	-36
	D	4	-3		-20	-16		-35	-43		-52	-62	
	B	2	-4	4	-14	9	-20	-25	-23	-38	-36	-17	-54
PT	N		1	-4		-13	-22		-4	-10		-16	-36
	D		-16			-8			-12			-40	
	B	-2	7	-8	-12	-6	-39	-4	5	-3	-19	-17	-49
UNEMP	N		25	12		61	77		42	49		128	139
	D												
	B		62	33		67	74		42	15		173	117
WOMEN	N		0	2		0	-1		17	19		17	20
	D	-4	9		20	21		35	54		52	83	
	B	-4	-1	-6	24	18	21	38	36	43	58	44	55

FAMILY STATUS (AGE OF YOUNGEST CHILDREN)

NONE	N		4	-13		7	-23		12	-17		23	-54
	D	19	12		8	5		14	11		42	28	
	B	9			7			5			21		
(5	N		-13	-7		-11	-13		-10	-16		-34	-36
	D	-19	-23		-8	-12		-14	-20		-42	-53	
	B	-14	-4		-19	-4		-8	-2		-41	-11	
5-14	N		-4	1		8	5		-4	4		-1	11
	D												
	B	-15	0		-4	0		-8	-7		-26	-7	
Older	N		24	8		-6	11		4	14		22	32
	D												
	B		5			3			10			17	

AGE

12-24	N		28	26		-6	14		-3	5		20	45
	D	36	55		-40	-36		-13	-22		-17	-3	
	B	43	52	32	-24	-12	2	-21	-19	-10	-2	21	24
25-49	N		-11	-10		-8	-8		-9	-9		-29	-27
	D	-8	-10		-16	-15		-24	-34		-49	-58	
	B	-5	-13	-5	-21	-4	-11	-12	-4	-26	-37	-20	-42
50-64	N		-10	-12		19	6		18	34		27	29
	D	-10	-26		2	14		-6	-17		-14	-29	
	B	-10	-15	-16	14	4	-12	3	12	8	7	1	-19
65 (	N		-4	-11		47	45		52	62		95	97
	D	-18	-19		55	37		43	73		79	90	
	B	-14	-32	-8	71	84	51	68	75	73	125	126	116

79   90
B

The sample means for paid work and domestir . 'r are not
particularly similar between the countries (though they do show
an interesting stability across time). It should be remembered
that this may reflect a number of different possibilities. It
may reflect actual differences of b̲e̲h̲a̲v̲i̲o̲u̲r̲ between the
countries, that, for example, people of a given sex and age and
employment status do more paid work and less domestic work in the
UK than in Holland. Or it may reflect differences in the
p̲o̲p̲u̲l̲a̲t̲i̲o̲n̲s̲ - that there are more of the sort of people weho do a
lot of paid work in the UK - or perhaps differences in the
make-up of the s̲a̲m̲p̲l̲e̲s̲. In this particular case the difference
is partly to be explained by population differences - the
relatively low level of women's employment in the Netherlands -
but it is nevertheless likely that a large part of the difference
is to be explained by differential biases in the composition of
the samples. (We require some further investigation here to
determine an appropriate scheme for weighting subsamples.)

The sample means for personal care, by contrast, show a striking
stability both between surveys and countries. All of the
estimates are quite closely clustered around 650 minutes per
average day. Only about two-thirds of this total, around 450
minutes per day, is accounted for by sleep, so the small extent
of variation is quite remarkable. The overall leisure time mean
for the Netherlands is rather higher than for the UK, balancing
the difference in overall work times - again, this difference may
be somewhat diminished by the application of an appropriate
weighting system.

Striking, in Table 9, is the similarity in the pattern of the

effects of the various sociodemographic categories in the

different surveys. Table 10 summarises the effects, simply by

counting the number of parameters with positive and negative

signs for each sociodemographic category. We can see immediately

that, as the analysis of variance statistics would lead us to

expect, age, sex, employment and family status have a very

regular pattern of effect on the paid work, domestic work and the

overall leisure category, but a somewhat less regular effect on

the personal care and more detailed leisure categories.

Table 10.   SIGN DIFFERENCES IN MCA COMPARISONS

	PAID WORK		DOMESTIC WORK		PERSONAL CARE		OUT OF HOME LEISURE	
	+ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve
SEX								
Men	7	0	0	7	1	6	6	1
Women	0	7	7	0	6	1	1	6
EMPLOYMENT STATUS								
Full time	7	0	0	7	0	7	3	4
Part time	0	6	6	0	3	3	2	4
Unemp.	0	4	0	4	3	1	4	0
Nonemp.	0	6	7	0	7	0	3	4
FAMILY STATUS								
None	1	4	1	4	4	1	4	1
< 5	2	4	6	0	3	3	0	6
5-14	3	1	1	3	3	1	1	2
Older	3	0	0	3	1	2	3	0
AGE								
12-24	7	0	0	7	4	2	7	0
25-49	5	2	7	0	0	7	0	7
50-64	4	3	7	0	3	3	0	7
65 <	0	7	7	0	7	0	0	7
NONCONTESTED GROUPS		9		12		3		7

	RADIO & TV		OTHER HOME LEISURE		TOTAL LEISURE	
	+ve	-ve	+ve	-ve	+ve	-ve
SEX						
Men	7	0	1	6	7	0
Women	0	7	6	1	0	6
EMPLOYMENT STATUS						
Full time	2	5	0	7	0	7
Part time	0	6	1	5	0	6
Unemp.	4	0	4	0	4	0
Nonemp.	5	1	7	0	7	0
FAMILY STATUS						
None	4	1	4	1	4	1
< 5	0	6	0	6	0	6
5-14	2	1	1	3	1	3
Older	2	1	3	0	3	0
AGE						
12-24	2	5	1	6	4	3
25-49	0	7	0	7	7	0
50-64	6	1	5	2	4	3
65 <	7	0	7	0	7	0
NONCONTESTED GROUPS		7		7		10

So from this preliminary examination of data from the first
completed contributions to European Foundation Archive, come some
striking international regularities - and also some very puzzling
differences. Presumably the low level of explanation of detailed
leisure patterns from the sociodemographic variables, implies
that other causal variables are implicated. Presumably
circumstantial factors - household equipment and mobility
household location and the accessibility of leisure facilities -
are of some importance here; the availability of the very wide
range of indicators of such circumstantial variables in the
various surveys in the Archive, means that it provides a very
fruitful source for future research in this area.

8. Examples of Analysis: Changing Work Times.

So far, little in the way of consistent chrʷ· in work times has emerged from the surveys (though some may emerge as more material is added). But we can nevertheless use the material to explore the issue of the effects of shorter working hours, by looking at cross-sectional material. That is, we can try to get some picture of the effect of shorter working hours, by looking, not at changes in work time between historical periods, but by looking at differences between activity patterns of people who work shorter or longer times at one historical period.

This form of analysis was in fact identified by A. Szalai, one of the progenitors of the UNESCO multinational study, as being of major importance; he suggested that understanding the relative "commpressibility" (we might prefer to think conversely of the same phenomenon as the "elasticity") of various activities with respect to paid work time, would provide the essential tools for understanding the process of determination of activity patterns (Szalai 1964). Whether or not this is the case, such analysis is certainly of great current significance for public policy. Extra free time, as suggested in Section 1, may enable employment generating leisure or domestic production activities; the analysis of work time elasticities provides just about the only source of information about these possible consequences of shorter working hours.
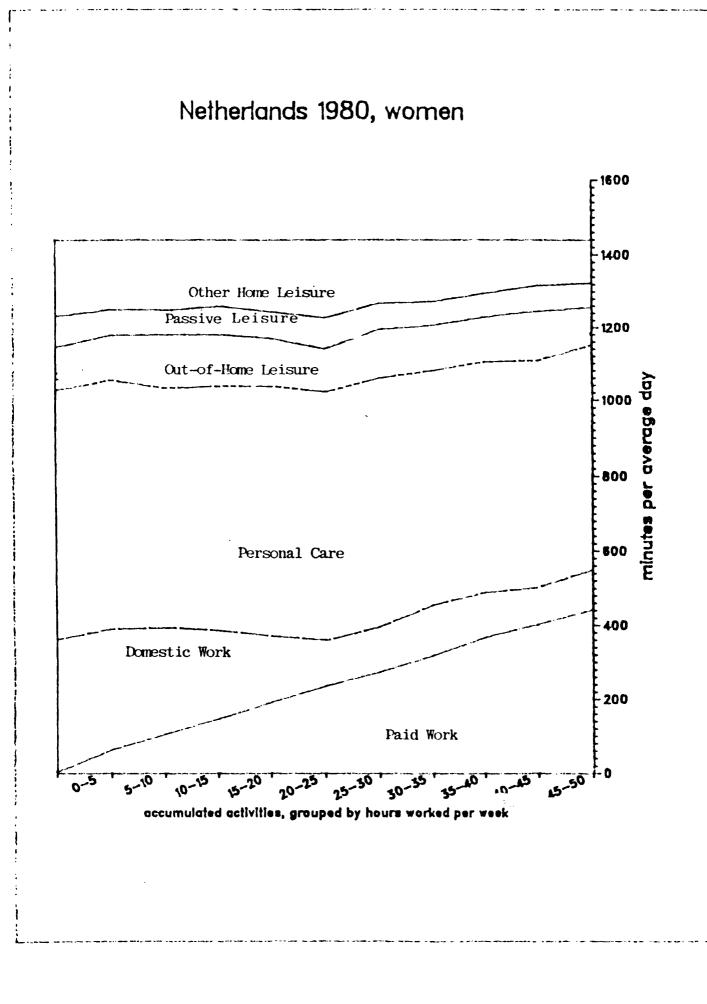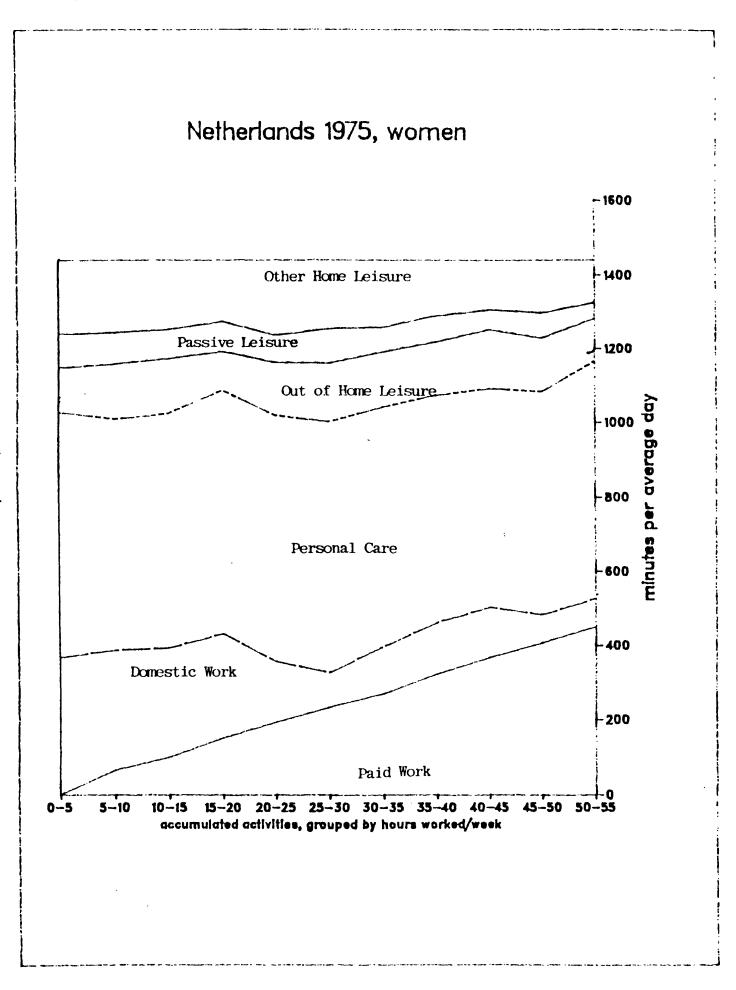
Figure 9: Time Use Elasticities, Holland
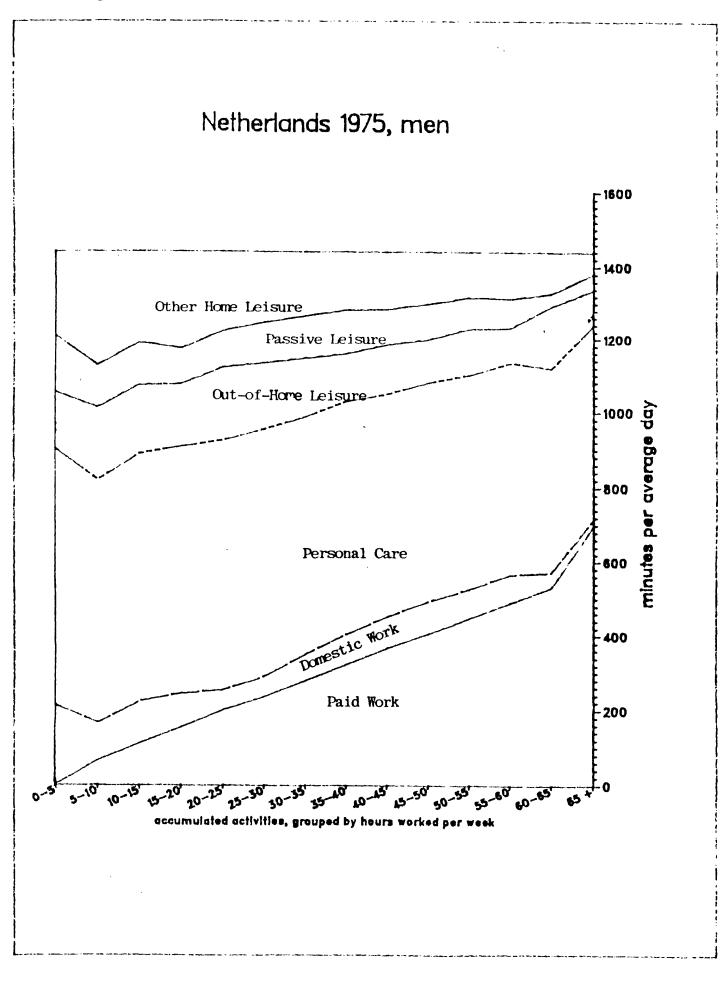
Netherlands 1980, women

accumulated activities, grouped by hours worked per week

Figure 9 (Cont'd)

Netherlands 1975, women

Other Home Leisure

Passive Leisure

Out of Home Leisure

Personal Care

Domestic Work

Paid Work

1600

1400

1200

1000

800

600

400

200

0

minutes per average day

| 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 | 50-55 |

accumulated activities, grouped by hours worked/week

Figure 9 (Cont'd)

Netherlands 1975, men

accumulated activities, grouped by hours worked per week

Figure 9 (Cont'd)

Netherlands 1980, men

Other Home Leisure

Passive Leisure

Out-of-Home Leisure

Personal Care

Domestic Work

Paid Work

minutes per average day

accumulated activities, grouped by hours worked per week

0-5 5-10 10-15 15-20 20-25 25-30 30-35 35-40 40-45 45-50 50-55 55-60 60-65

Figure 9 gives an overall view of the differences in time allocation of groups working different numbers of hours per week in Holland in 1975 and 1980. Some categories of activity are, for both men and women, plainly quite incompressible, or inelastic, with respect to time in paid work. Personal care, for example, stays more or less constant irrespective of the length of the working day (this is also the finding reported by Szalai in the previously cited article). Perhaps more surprising, time spent watching television stays more or less constant for a wide range of different hours of work. There are some very clear sexual differences, however. Most notable is the effect of reduction of paid work: for women, below about 25 hours of paid work, each successive hour's reduction in paid work, brings with an equivalent (or in 1975 more_than_equivalent) increase in the quantity of domestic work. Men, by contrast, show only the very mildest of propensities to increase their domestic work with decreases in paid work. Instead, they show a tendency to increase time devoted to leisure at home (whereas women treat this category as incompressible/inelastic). Similarly, out of home leisure time appears more elastic for men than for women.
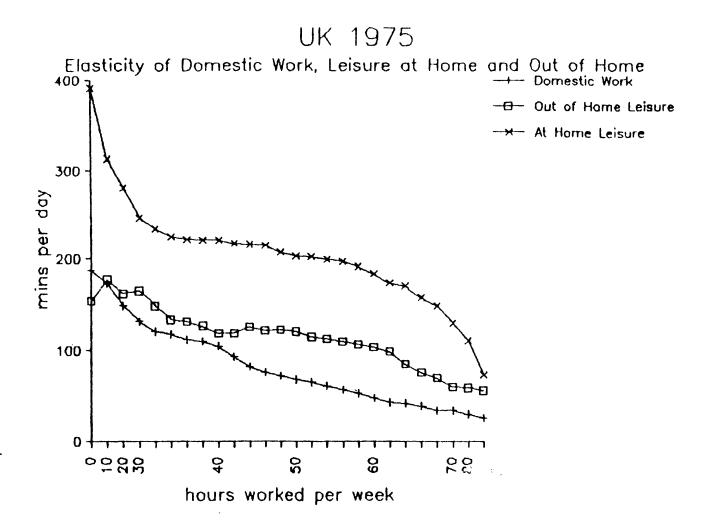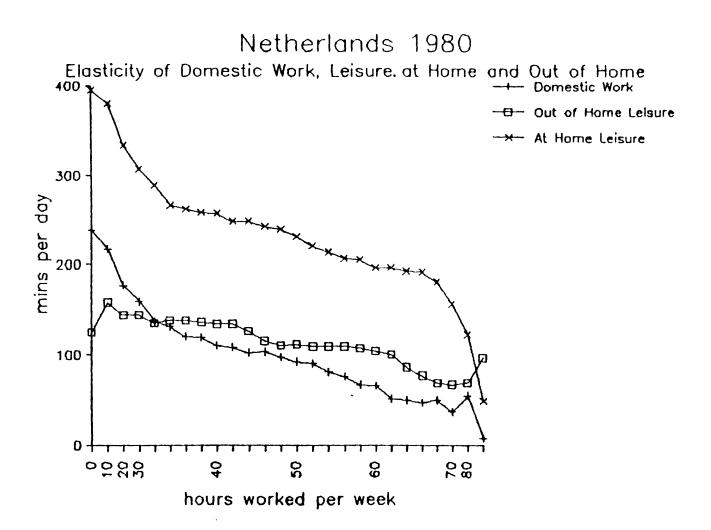
Figure 10: Women UK 1975

mins per day

1050 — Other Home Leisure

Passive Leisure

787.5 — Out-of-Home Leisure

Personal Care

525 —

Domestic Work

262.5 —

Paid Work

0 —

0   12   24   36   44   52

cases grouped by hours worked/week

Figure 10: Women UK 1961

Other Home Leisure

Passive Leisure

Out-of-Home Leisure

Personal Care

Domestic Work

Paid Work

mins per day

1050

787.5

525

262.5

0

0   12   24   36   44   52

cases grouped by hours worked/week

Figure 10: Men UK 1975

Figure 10: Men UK 1961

Now consider Figure 10, for the UK. Almost the whole of the previous paragraph applies to this as well as to Figure 9. Television viewing is rather more elastic for men than in the Dutch case, other at home leisure a little less so. But with this exception the two sets of figures are almost interchangeable.

This sort of analysis however has some serious shortcomings. It covers the whole population - and there is a wide range of different reasons for working shorter hours. A man may work short-time because he is semi-retired, or unemployed, or takes a principled desision to do so. Figures 9 and 10 cover the whole of the sample, from schoolchildren to retired people; the relative constancy of the proportions in the various activities reflect a whole host of differing purposes. We get a rather clearer picture of the nature of time-use elasticities by looking at rather more sharply defined groups. The following sequence of pictures takes, for the sake of example, men between the ages of 25 and 45; though of course choosing an even more tightly specified group than this (as for example women with children below the age of 6) would provide us with a correspondingly even more sharply defined picture.
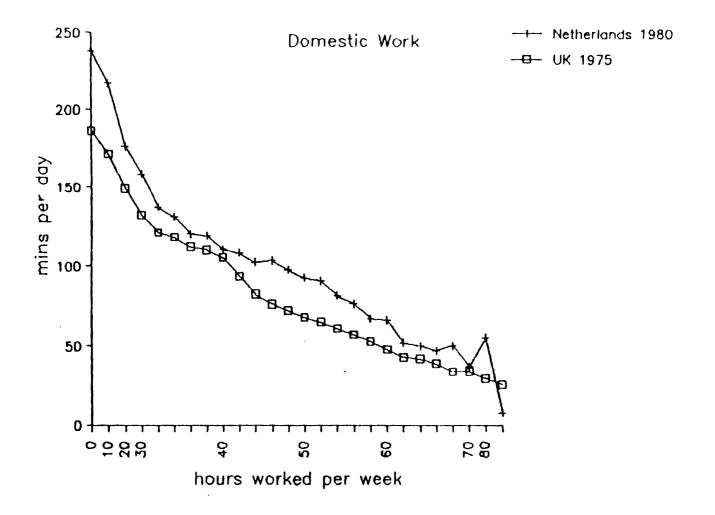
UK 1975

Elasticity of Domestic Work, Leisure at Home and Out of Home

—+— Domestic Work

—⊟— Out of Home Leisure

—✕— At Home Leisure

mins per day

400

300

200

100

0

0 10 20 30 40 50 60 70 80

hours worked per week

Netherlands 1980

Elasticity of Domestic Work, Leisure. at Home and Out of Home

—+— Domestic Work

—□— Out of Home Leisure

—✕— At Home Leisure

mins per day

hours worked per week

Figure 11 shows time-use elasticities for th' ¸ ~ broad categories of activity: domestic work, out-of-home leisure, and at home leisure (including both passive leisure and the other at-home category). In the Netherlands there is a clear difference between the slopes of the different sorts of activities. Out-of-home leisure seems relatively elastic with respect to reductions in paid work time from very long hours down to around 40 hours per week, but from then on remains relatively inelastic, at around 2.5 hours per average day. Domestic work, and leisure time at home, by contrast, seem to be quite markedly elastic throughout the full range of working hours. The UK pattern is rather less clearly differentiated; through much of the range of hours of work the three classes of activity seem to show approximately similar elasticities.
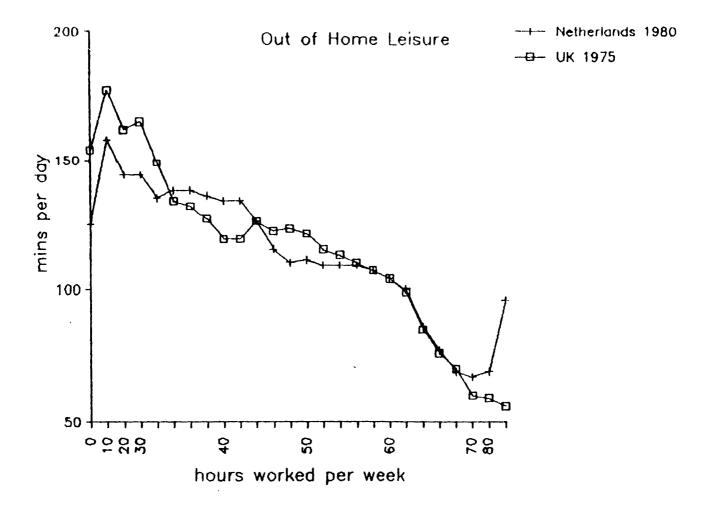
Figure 12 uses exactly the same data, but plots each of the activities for the two countries together. There are differences, but nevertheless the overall picture is in each case very similar for the two countries. Domestic work and leisure taken at home showing the same elasticity throughout the range of work times, out-of home leisure showing a rather lesser elasticity overall. Why should out-of-home leisure be less elastic? It could be that this reflects the lower disposable income of those working shorter hours, making the out of home activities, which tend to have monetary costs, less attractive relative to the home-based activities which tend to be cost free.

The European Foundation Archive has collected material that may
allow us to answer this question - which has not-insignificant
implications for the question of whether shorter working hours
adopted for the purpose of employment creation should be
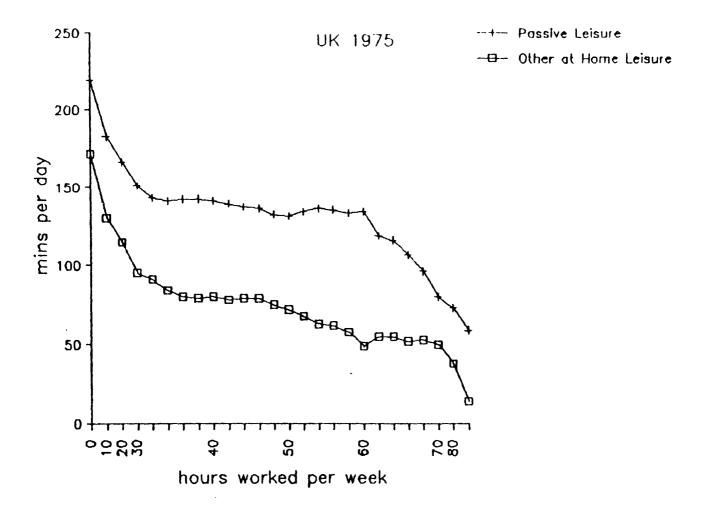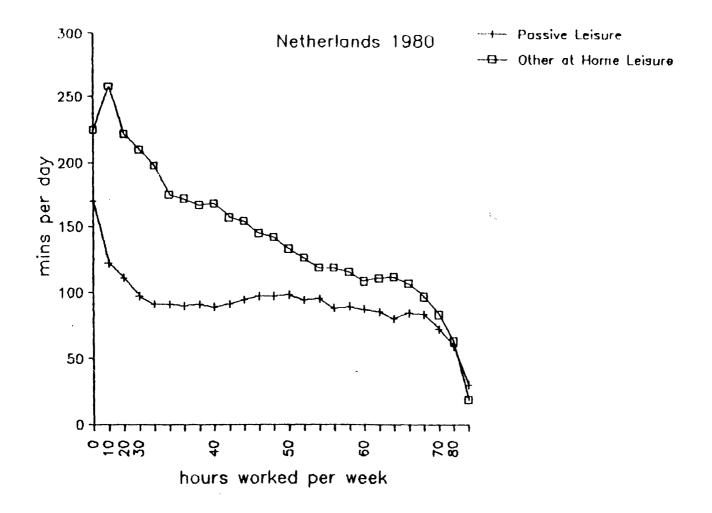accompanied by pay reductions.

Domestic Work

Netherlands 1980
UK 1975

mins per day

hours worked per week

Out of Home Leisure

—+— Netherlands 1980
—◻— UK 1975

The curves in Figure 12 are strikingly similar for the two
countries; there are also some striking differences. Figure 13
disaggregates the "at home leisure" category into its two
components, passive and other home leisure. In the UK, passive
leisure occupies a great deal more time than the other home
leisure category, and both show a moderate degree of elasticity;
conversely, in Holland, other home leisure activities predominate
strongly over television and radio, which shows something of an
inelasticity with respect to paid work time over a good part of
the range. Why should these two countries, whose behaviour is so
similar in broad outline, show such marked diffewrences in
detail? Again, we can hope to use the archive material to answer
such questions.

Netherlands 1980

Passive Leisure
Other at Home Leisure

9. The Next Steps

This work is obviously at a relatively early stage in its development
Over the next year, two rather different sorts of exercise are
contemplated: we must complete the data collection exercise; and we
must also press ahead with the first round of analysis.

The completion of the data collection exercise involves four differen
sorts of activity:

1   Adding material from other countries (Norway, France, and it is
     hoped Canada and the USA) to the dataset. This involves, in some
     cases, procuring additional raw data (part of the promised survey
     materials from France, Canada, and the USA has not yet been
     supplied); mounting "foreign" data tapes at Bath and reading
     them; translating code books for the s⁻ɪ ˾˾₃, and writing them
     into SPSSX system files; recoding data to give compatibility
     between surveys at different dates, and between countries.

2   It may also be possible to add more recent surveys from some of
     the countries represented in the sample. France, Holland and
     Denmark are each undertaking new time budget surveys during 1985;
     if this material can be made available, then (given that the UK
     data already includes 1984 material) four of the countries will bᵣ
     have three surveys each, giving a good coverage from the 1960s to
     the 1980s.

3   It may also be desirable to relax the requirement that all the
     contributing countries should have more than one survey to
     contribute. While intertemporal (historical) comparisons within
     countries remains a central focus of the research, it may
     nevertheless be desirable to extend the cross national component
     by including material from, for example, Sweden, Germany, and
     Italy, even though they can each only contribute one survey to the
     collection.

4   We must also continue the process of renaming and re-ordering
     variables within each survey. We intend to provide a degree of
     commonality of organisation across the data, so as to ease its use
     and improve the accessibility of the material to other
     researchers.

We also intend to continue our basic analysis of the data set,
concentrating mainly on the issue of the reduction of working time.
We intend three different sorts of analysis:

1   We shall continue the sort of basic descriptive work covered in
     Section 7. This sort of work is certainly important in itself,
     since it establishes the basic patterns of similarity and
     dissimilarity between the countries. But it is also a necessary
     preliminary to intertemporal comparisons, since we must ensure
     that apparent differences in time-allocation between earlier and
     later surveys is a reflection of actual behavioural changes rather

than compositional changes in the samples or populations. The analysis of variance and effect parameter analyses included here provide the raw material for the weighting procedures necessary for making comparisons between surveys undertaken at different dates.

2   We will continue the cross-sectional analysis along the line started in Section 8; making inferences about the likely changes in life-style that might emerge as a result of reduction in working time, from evidence drawn from the differences of life-styles between people with shorter and longer work weeks. ' some of the material, it may also be possible to look at the alternative consequences of different styles of reduction of wor¹ time (ie shorter work day vs shorter work week vs shorter work year). And this material will certainly enable us to explore th' life-style consequences of shorter working life, through the comparison of activity patterns at different stages in the life-cycle.

3   This "cross-sectional" form of analysis does only allow us to ma¹ inferences; the longitudinal components of our data set however allow us to make certain sorts of tests of these inferences. Where we have an earlier and a later data set, we can test to se⁻ if the cross sectional inferences from the earlier period do serv to predict the changes between the earlier and the later. The evidence as the the quality of cross-sectionally based inferences

- and also our observations as to how changes in tastes and options serve to reduce the usefulness of such inferences - provides a reasonably firm basis for thinking about the likely future consequences of work-time changes.

It is hoped that this work will continue through 1985 and 1986. By the end of 1986, both the data preparation and the basic analysis will be completed.

The work discussed so far lies quite solidly within the tradition of academic time-budget analysis. But the implications of the work spread far beyond this academic speciality, and are likely to be of major importance for a range of issues of public policy. The research programme of the European Foundation covers a range of issues ("time management", "the organisation of time", "time and the family") to which this programme of data preparation and analysis may contribute. It is intended that this material should be made available for use by the wider community of researchers into time-related issues.

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