

The STILE project: developing a methodology for measuring teleworking

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Abstract

As there is no agreed definition of teleworking, collecting statistics about this form of work organisation is problematic. Data users interested in teleworking have a wide variety of motives which causes them to use different definitions. The STILE project examined questions that have been used in general population surveys to measure teleworking. The team concluded that data should be collected objectively on (1) place of work (2) time spent working at a distance from the employer's workplace and (3) use of ICT. The definition of telework can then be decided upon at the time of analysis. Extra questions on other matters of interest should be nested within this structure to maintain general comparability. The order of questions (filtering) will depend on the purpose of the carrier survey and the interests of data users. The team piloted this approach with 718 users in 4 countries (non-random sample) and by "piggybacking" questions on the Hungarian and Irish labour force surveys, allowing useful cross-tabulation with other data collected.

Keywords: Telework, e-work, statistical indicators, labour market, general population surveys.

Background

In 2001, Statistik Austria published an interesting report of its supplement to the Austrian Mikrocensus for September 2000 covering PC and Internet usage along with telework. At the end of the document, the authors attempted to compare their results with those published by the European Commission in its *eWORK 2000, Status Report on New Ways to Work in the Information Society*, which would have led a casual reader to assume that the level of teleworking in Austria was about on a par with that in Portugal, and very much at the lower end of the European spectrum.

The authors commented:

*"A definite classification in this list of telework quotas is, however, difficult to decide as it is not clear on which definition of telework other European countries base their surveys (that's to say that very different definitions were applied). To some extent the data from other countries are estimates or methodically doubtful due to the low quantity of random surveys carried out."*⁴¹

Anyone researching this area quickly becomes confused. Typical areas of ambiguity include whether the figures under analysis cover:

- the self-employed or just the employed
- people working at places other than the office or the home (travelling, on client premises)

- people teleworking occasionally or irregularly (does once a month or once a year count?)
- duration of work outside the office in the reference period which “qualifies” as telework (an hour? a full day?)
- level of ICT use – must the work be delivered over the Internet or just carried out on a PC?

The different definitions in use have a massive impact on results reported. A recent survey of teleworkers in the US² gave headline figures of 27.4% of all US adults in employment teleworking. On closer examination this represents anyone who reports working at home ever, regardless of whether they use ICTs. The most recent set of UK Labour Force Survey figures on telework for spring 2004 suggest that 6.9% of adults in employment telework. The UK definition looks at people who have worked either at home, or in multiple locations using home as a base, for at least one day during the reference week, and need to use both a telephone and a computer in order to complete their work. Sample size and selection inevitably also have marked effects on the “headline” results for telework.

This problem of confused definitions and methodologies is one which the STILE project³ has attempted to tackle by investigating the use of general population surveys (GPS), in particular labour force surveys, to collect information on teleworking (e-working). The starting point, as with most statistical investigations, was an analysis of user needs.

Background

Teleworking and e-working are largely interchangeable terms used to describe work which takes place outside the conventional office involving the use of ICTs. However, there is no agreed definition of either term⁴.

There is considerable public interest in this way of working, particularly for home-based working. Several national statistical offices, including Austria, the United Kingdom, Hungary, Ireland, Finland, Luxembourg and Slovenia have carried out investigations through their labour force surveys to try to ascertain the uptake of these new forms of work.

STILE first of all carried out an exercise to collect all relevant questions which had been asked through the labour force surveys in recent years and collate them according to theme⁵.

Existing methods of measurement

The CLFS already asks about work at home in all EU member states. It is worth noting that under the Eurostat definition of work at home, anyone whose place of work comprises a separate unit (such as a doctor’s surgery or tax accountant’s office with separate entrance) is not included. This would tend to exclude from the homeworking figures teleworkers who work in the increasingly popular “garden offices”, for example. The question is asked of all those in employment:

- HOMEWORK:** Do you work from home?
1. Usually
 2. Sometimes
 3. Never

The Eurostat definition when strictly applied also only includes employees who have a formal arrangement for working at home “mutually understood by the employee

and the employer” although the definition specifically mentions employees “equipped with a computer in his home in order to perform his work” as fulfilling this requirement.

The UK (1997-2004) and Ireland (2002) have used a two step approach in their LFS by asking those who work from home whether they use computers and telephones as part of this work, although there are some significant differences between the two countries in the exact questions asked and filtering procedures. Denmark, Finland and Luxembourg have asked relatively direct questions of the form “Do you telework?” which depend on an understanding of the terms used.

Statistik Austria also used a two step process but began by asking whether people use computers as part of their work, then asking the locations at which the computers are used. This “ICT first” approach was also used in Ireland in 2003 to add questions on teleworking to the Eurostat ICT household survey. Hungary has used both a direct question approach and an approach based on the UK/Irish model with widely varying results. Slovenia has also used a two step process similar to that used in the UK and Ireland.

Three approaches to identifying e-workers emerge from detailed examination of these questions.

The first approach is to ask a specific question along the lines of ‘Are you a teleworker?’ This approach is problematic because respondents have to know what is meant by the term teleworker (or e-worker) and have to correctly identify themselves as one. In addition, in the LFS context where some countries use a proportion of proxy interviews with other household members, it can be inaccurate. As part of the STILE project, the Hungarian national statistical office used this approach to filter teleworkers and then applied the STILE pilot telework module questions to them. The result was that only about one quarter of those who identified themselves as teleworkers turned out to be so using objective measures⁶.

There may also be an effect of ‘social desirability’ inducing some respondents to claim to be teleworkers, as well as the opposite effect for some respondents where it is not seen as desirable. A lot of male, professional multilocational workers do not see themselves as teleworking, which they confuse with poorly paid homeworking arrangements mainly taken up by women. This “definitional” approach is therefore not recommended.

The second approach starts by identifying those who work at home and then seeks to discover whether they use ICTs.

The third approach identifies those who use ICTs and then asks whether they work using ICTs from locations other than their employers main premises. Both of the last two approaches can facilitate detailed cross tabulation of ICT use and location

For some research into topics such as road traffic substitution effects, telework might be defined as: ‘Work that is systematically carried out from home, even if no telecommunications link is used to bridge the distance’, because it is the avoidance of commuting travel which is of interest. Other research, perhaps related to technology usage, may choose to take into account all the forms of distance work that have become possible as a result of new technologies and could define telework rather differently as ‘work that is performed outside the traditional workplace and for which a telecommunications link is indispensable to bridge the distance with the traditional workplace’. You pay your money and take your pick...

Data users

A number of government departments and public bodies are likely to require information on the true spread and likely uptake of e-working to inform their policy and actions e.g.

Employment, trade, enterprise

- labour shortages and skills retention issues (eg opportunity to continue employment if spouse relocated)
- family friendly initiatives
- regionalisation
- knowledge economy jobs
- research evidence indicates e-workers are more productive than office-based workers with implications for efficiency and competitiveness.
- identifying jobs which are at risk of relocation offshore due to distance independence

Environment, local government

- possible effect on traffic congestion through substitution of journeys to work
- possible effect on land use and planning law (use of home offices, provision of work to areas outside capital city centres).

Justice, equality, social aspects

- work opportunities for people with disabilities or for social inclusion measures.
- flexibility to manage work and family

Health and safety

- health and safety of e-workers both at home and on the move. Issues of ergonomics, isolation and long working weeks.

In addition, telework statistics are of considerable interest to students and academic researchers in relation to a number of subjects including management techniques, gender studies, land use, work organisation, architecture, IT system design etc.

Methodology

The STILE project has:

- carried out a literature review in five EU countries (BE, IE, IT, UK, HU);
- collected and analysed questions used in the past by EU national statistical offices (and some accession state national statistical offices) which could be relevant to teleworking;
- prepared a detailed pilot module of telework questions which was piloted on a non-random sample of 718 spread over four countries;
- examined US experience of “piggybacking” telework questions on a variety of existing GPS surveys.
- “piggybacked” some brief telework questions on the Irish QNHS (the Irish version of the LFS) and the Hungarian LFS;
- analysed the results, discussed and developed them through meetings of five national user groups and at two meetings of a European user group;
- prepared recommendations on suitable indicators and filtering issues; and
- disseminated the results to European national statistical institutions and through the STILE and NESIS project concluding conferences.

The involvement of user groups was very important in determining an approach which looks at the data requirements and policy questions, rather than focussing on a fixed definition of teleworking. As an example, the Irish national user group included representation from the following:

- Irish employers association which had also been involved in drafting the Irish government code of practice on teleworking
- Irish congress of trade unions which had been involved in drafting the Irish government code of practice on teleworking
- Irish government e-work action forum, concerned with promoting e-work through specific actions and removal of legislative barriers
- European Foundation for the Improvement of Living and Working Conditions.
- A well-known Irish commercial market research organisation specialising in ICT-related topics
- Irish partner of the SIBIS EU research project covering a wide range of ICT-related statistical indicators
- An academic involved in management studies
- The Irish Central Statistics Office

Core indicators

Since there is no absolute, agreed definition of telework but rather, a collection of definitions depending on the topic of interest, the STILE approach recommends collection of data in objective terms allowing the definition to be derived separately according to the requirements of particular policy questions.

After consulting available literature, existing GPS questions and the views of the national user groups, the STILE researchers concluded that the core indicators for telework required to service this diverse range of information clients are:

- Place of work (see question 3 below);
- Time spent working at a distance (see question 4 below);
- Use of ICT (see questions 1, 2, 5 and 6 below).

To test these indicators, the STILE project developed some model questions intended for use in an LFS context for crosstabulation with other LFS data. The project also prepared lists of additional indicators which some researchers may be interested in using, and which can be “nested” within the structure of the three core indicators as required.

Suggested questions

There are six core questions which, through their interaction, can be used to define and analyse the main categories of teleworking. The most suitable sequence of questions and the routing employed depends on the main purpose of the analysis. These questions and the pros and cons of the various routing options, are covered in more detail at <http://www.stile.be/wp5/D5.2%20Eurostat%20recommendations.pdf>.

1. Use of computer for main work

Do you use a computer for your work?

(yes/no question- to be asked of all respondents)

2. Use of Internet and email for main work

Do you use the internet or email for your main job?

(yes/no question- to be asked of all respondents)

3. **Place of work**

In the last four weeks (reference week and 3 weeks before) have you carried out work at any of the following places?

(multiple answer - to be asked of all respondents)

- a. In your own home
- b. At locations belonging to a third party (eg customer premises)
- c. On the move (while travelling)
- d. In more than one location belonging to customers or clients
- e. Other places that are not traditional workplaces (hotels, conferences, etc.)
(specify: _____)
- f. In more than one location belonging to your employer
[not a teleworker - stop the questionnaire]
- g. At just one location belonging to your employer
[not a teleworker - stop the questionnaire]
- h. Other traditional workplaces (specify: _____)

4. **Time spent working at a distance**

In the last 4 weeks (reference weeks and 3 weeks before), approximately how many hours a week, on average, did you spend working at a distance (from your employers' location)?

5. **Use of computer when working at a distance**

Do you use a computer for your work when you are working at a distance?
(yes/no question)

6. **Use of internet or email when working at a distance**

Do you use the internet or email for your work when you are working at a distance?
(yes/no question)

Filtering

Question 1 asks all those who are in employment whether they use a computer for their work in respect of their main job. In the version of the routing that has been used in additional modules of the Austrian Mikrokensus, this is the initial e-work question and, in turn, constitutes the main filter question. The main benefit of using this question as the starting point for any e-work module is that it gives, as a side benefit, measures of the penetration of computers in the workplace.

Those who say that they use a computer as part of their main job are then asked in question 2 whether they use 'the Internet or email' as part of their work. As with question 1, this has the side benefit of allowing measures of the penetration of Internet and email use to be obtained, in addition to any telework dimension. This also allows the increasing ubiquity of computers to be taken into account as the use of the Internet or email may be a better indicator of remote delivery or receipt of work than simply the use of computers.

It is necessary to use the compound phrase 'Internet or email' because there are some forms of email which do not require the use of the Internet and, conversely, there are some forms of Internet-based interaction which do not involve the use of email but which might nevertheless lead to a designation of their users as teleworkers. It is also the case that some forms of Internet access no longer require computer use.

Question 3 identifies a variety of locations outside the traditional office which can be used for e-working.

In the Irish ICT household survey additional questions of June 2003, questions 2 and 3 were combined and modified slightly to fit with the carrier survey.

Question 4 is an intensity question and asks about the total length of time spent working at a distance from the respondents employer's main location. This covers all the non-standard working locations from question 3. These data can be crosstabulated with the total work time ascertained through the general questions in a labour force survey and thus allow a distinction to be drawn between regular and occasional e-workers. In the typology proposed by STILE (see <http://www.stile.be/wp5/D5.2%20Eurostat%20recommendations.pdf>), occasional teleworkers were those that declared having worked at a distance for less than 20% of their entire working time. This particular definition has been used because the approach which asks about "full days" worked at home used in the UK LFS may underestimate work carried out at multiple locations and for parts of days.

Questions 5 and 6 are used to confirm that ICT is in use at the remote locations.

It became clear from the STILE pilot work that telework carried out in second jobs is much less common than telework carried out in primary jobs, so it may be possible to reduce interviewer burden by omitting the telework questions in relation to second jobs. However, telework in second jobs appears to be more common in other jurisdictions such as the US.

The most difficult filtering issue concerns the order of the ICT and location questions. The order of the questions will depend on the context of the questionnaire (other questions asked, target group, research question, etc.) to which the module is attached, but the pros and cons for using the ICT filter within the LFS context are listed here.

It is also worth bearing in mind in terms of the filtering and interviewer burden that as a rule of thumb, about 11-12% of people work at home while around 40-45% use a PC in the course of their work (Data from *European social statistics – labour force survey results 2000*, Eurostat and *Third European Survey on Working Conditions 2000*, European Foundation for Living and Working Conditions).

Pros for using the ICT filter first

- The question is asked of all respondents and produces interesting information about the entire population.
- It is an easy question to answer as the first filter. It reduces the interviewer burden as the more complex location question is not asked of all respondents.

Cons for using the ICT filter first

- As PC usage at work is high, the filtering power is quite low.
- There is a greater risk that nearly everyone who works away from the conventional office may be defined as a e-worker which may not fit the requirements of the data user.

In an ideal situation with no resource or interviewing limitations, it is preferable to ask both the ICT and location questions of all interviewees to provide maximum information for cross-tabulation rather than using either as a first filter.

Carrier surveys and filtering

Almost any employment-related GPS survey could be used to carry the model questions. Information and suggestions on carrier surveys are given at <http://www.stile.be/wp5/D5.2%20Eurostat%20recommendations.pdf> .

Results of the STILE approach in the LFS context

The STILE approach was utilised in preparing questions for inclusion in the Irish Quarterly National Household Survey for the third quarter of 2002. Questions on telework were also included in the Eurostat 2003 Information, Communication and Technology (ICT) survey carried out in June 2003 in Ireland.

Although the two sets of results are not directly comparable for reasons of sample size, reference period and differences in questions (caused by the different intentions and contexts of the two carrier surveys), the results showed similar patterns.

	QNHS q3 2002		ICT survey June 2003	
	'000s	%	'000s	%
Total in non-agricultural employment	1,676.5	100.0	1,676.6	100.0
Of which work from home	149.5	8.9	192.7	11.5
Of which use a computer with a telecommunications link	59.9	3.6	59.2	3.5
Of which need a computer with a telecommunications link	39.2	2.3	31.2	1.9

Both surveys also showed similar trends which can be illustrated through crosstabulation with standard LFS data.

- Over two thirds of teleworkers are male
- Teleworkers tend to be aged between 25 and 54
- Teleworkers are more likely to reside in the Dublin area
- Teleworkers are more likely to have a third level qualification
- Teleworkers tend to work for 45 or more hours a week
- Teleworkers tend to work in the financial and other services sector
- Teleworkers tend to work in a managerial, professional or technical role.

Note: workers in the agricultural sector were excluded from the analysis. Mobile teleworkers who do not work from home are not picked up by the questions used in the 2002 results, but can be picked up by the questions used in the 2003 survey.

It is intended to repeat both sets of questions in 2004 which will provide time series data. Further information on the sample sizes, differences in questions asked and other features of the two surveys are published on the STILE website along with data tables from the June 2003 questions⁷. A full release of the telework data from the Q3 2002 questions is also available from the CSO website⁸.

Benefits of LFS crosstabulation opportunities

The UK LFS has included annual questions on teleworking since 1997. While these questions pre-date the STILE recommendations, and are also not directly compatible with the Irish data, the basic approach of using indicators on location and ICT usage is the same, and many of the gross features of the Irish and British teleworkers are similar (self-employment proportion, education level, sector, occupation).

The main differences between the two sets of questions lie in the way in which people who work at home are identified, and in the definition of the ICT equipment used. In the UK LFS, only people who work for one full day at home in the reference week are asked the telework questions. In the Irish QNHS questions asked in 2002, the filtering takes place via the Eurostat HOMEWORK question. This does include people who say they work at home “occasionally” which can include those who work at home for less than one day a week. Equally, it would also be possible in the Irish questions for someone to report working at home for just part of each day as “usually” working at home.

The UK LFS questions are:

HOMED

(In your main job) have you spent at least one FULL day in the seven days ending Sunday the xxth working...

- 1 in own home (IF HOME = 1 OR EVHM98 = 1)
- 2 in the same grounds or buildings as your home
- 3 in different places using home as a base?
- 4 not worked at home during reference week

TELEQA (IF HOMED 1-3)

Do you use both a telephone and a computer to carry out your work at home?

- 1 Yes
- 2 No

TELEQB (IF TELEQA=1)

Would it be possible to work at home (or use home as a base) without using both a telephone and a computer?

- 1 Yes
- 2 No

The Irish QNHS questions ask about using a computer with a telecommunications link, which is likely to produce smaller numbers of teleworkers than the wording of using “both a telephone and a computer”.

Some very interesting information about teleworkers can be extracted from the UK questions because of the richness of the data collected in the carrier survey. In addition, the time series data have proved useful to a number of government and industry users whose policies may be affected by the level of growth in teleworking.

A paper by Ulrike Hotopp of the UK Department of Employment examined a number of aspects of interest to telework researchers such as the effect of the large number of self-employed teleworkers on gender balance⁹.

Several analyses of the UK figures have been prepared by the Institute for Employment Studies, a partner in the STILE and EMERGENCE research projects¹⁰. Interesting features of the data analyses include:

- The gender difference in teleworkers (53.7% male) depends on the type of telework carried out. Men account for over 77% of teleworkers who work in multiple locations using home as a base, and 65% of occasional teleworkers but only form a minority of those who report working at home (43.7%).

- A minority of UK teleworkers report working at home (telehomeworkers) rather than at multiple locations using home as a base. However, the telehomeworkers are much more likely to be part-timers (45.3%) than any other type of teleworker, and if female, to have children under 5 years of age (23% of women telehomeworkers as opposed to 12% of all women in employment). Men with children under 5 are less likely to be telehomeworkers (10% as opposed to 15% of all men in employment).
- UK teleworkers are generally older than their non-teleworking counterparts. Only one in 40 teleworkers falls into the age range 16-25, compared to one in six of the UK population. Conversely nearly one half of teleworkers are over 45 years of age, compared to just over one-third of all workers.
- Teleworkers are slightly more likely to be disabled than the general working population (14.6% disabled compared to 13.1% in employment).
- Employed teleworkers are likely to work longer hours than the general working population. Some 60% of employed teleworkers work for more than 40 hours a week, compared to 32% of employees overall.

Remaining problems

In considering the results of the 2002 QNHS telework questions, the Irish user group raised issues in relation to occasional and mobile teleworking. The approach which was used in the QNHS 2002 does not pick up mobile teleworkers who never work from home, which was felt from anecdotal reports to be an increasing phenomenon.

These issues resulted in part from practical requirements to keep interview time burdens down and avoid duplication with other aspects of the carrier survey. For example, the existing QNHS work at home questions have answer options in the form “sometimes”, “usually”, “never”, which mirror a series of other work organization questions and which were utilized as telework filters to avoid duplication of questions.

In addition, the QNHS questions followed the UK LFS in identifying teleworkers as either working at home or “in different places, using home as a base”. This wording has been criticized for excluding people who mainly work in the office, but also work in multiple locations (ie they would not identify home as their base). The questions used in Ireland were:

HOMEWORK (if respondent worked in reference week)
Do you work from home?

1. Usually
2. Sometimes
3. Never

HOMED:
(If respondent usually or sometimes works from home and was not absent in reference week)
(In your main job) have you spent at least one FULL day in the seven days ending Sunday the xxth working

- 1 in own home;
- 2 in the same grounds or buildings as your home;

3 in different places using home as a base?;
4 not worked at home during reference week

TELEQA: (If respondent usually or sometimes works from home)

Do you use a computer with a telecommunications link to carry out your work at home?

1. Yes
2. No

Note: The telecommunications link must be used to receive or convey data / information in the course of work. It is not sufficient for a link to be available on the computer but not used for work purposes.

TELEQB: (if the respondent usually or sometimes works from home and uses a computer with a telecommunications link to carry out their work at home)

Would it be possible for you to work at home (or use home as a base) without using a computer with a telecommunications link?

- 1 Yes
- 2 No

On the second occasion that the STILE telework methodology was used, the questions were asked as part of the Eurostat ICT survey, which was asked of a sub-sample of QNHS respondents in June 2003. On this occasion, an approach of asking about ICT first and then location was used for those people who reported using the Internet. The questions were asked of all who reported using the Internet, and allowed for more detailed investigation of mobile teleworkers, partly in response to the user group concerns.

WORKINT if USEINT=1

Have you used the Internet at home in the last 3 months for any of the following work-related activities?

- 1 Finding information relating to your work or business
- 2 Sending work to work place
- 3 Accessing files on the employer's server
- 4 Communication (exchanging and accessing e-mails)
- 5 Other work-related activities
- 6 No, none of the above

WORKINT2 if USEINT=1

Have you used the Internet at places outside your main work premises other than at home in the last 3 months for any of the following work related activities? (e.g. at customer or client premises, in transport while travelling etc.) (multiple choice)

NOTE: 'work-related activities' refer to activities related to employment. Activities relating to educational courses are not included.

NOTE: Option 6 implies no other option is selected

- 1- Finding information relating to your work or business
- 2- Sending work to work place

- 3- Accessing files on the employer's server
- 4- Communication (exchanging and accessing e-mails)
- 5- Other work-related activities
- 6- No, none of the above

TELEQD if WORKINT=1-5 or WORKINT2=1-5

Would it be possible for you to work at home/away from your employers premises without using the Internet?

- 1 Yes
- 2 No

TELEQE if WORKINT=1-5 or WORKINT2=1-5

On average, in the four weeks ending Sunday XXth, how many hours a week did you use a computer while working at home/away from your employers premises?

Enter hours [Range 01 – 140]

00: hours vary – can't give usual hours

140: 140 hours or more

On both occasions, the Irish questions followed the UK LFS in asking if the ICT link is necessary whereas the STILE recommendations only ask if the ICT link exists. The intention of asking about necessity is to allow those whose ICT use is intensive to be identified separately. The Institute for Employment Studies (IES) has also undertaken further analysis of the UK LFS figures using cross-tabulations with sector and occupation to try to identify separately people whose main work does not involve ICTs but who do use ICTs for a small part of their work. For example, the EMERGENCE project led by IES identified a group described as the 'e-enabled self employed', such as construction workers who might use ICTs occasionally for tasks such as invoicing.

Initial, indicative figures from the Irish 2003 ICT household survey show that less than 1% of those in employment in Ireland are "mobile only" teleworkers who did not use the Internet for work at home but did use it at places other than home or their main work premises during the preceding three months. In addition, some 40% of the 1.9% in employment who used the Internet for work related activities at home also did so at places other than home and their main work premises. This suggests that when all those who use the Internet for work outside the main work premises are taken into account, not just those who do so for a full day at home, mobile teleworking may be more prevalent than home teleworking in Ireland.

Interestingly, the Statistik Austria survey in 2000¹¹ included more complex questions on location and duration that also allow "mobile only" teleworkers who do not work at home to be identified. According to a personal communication from the Austrian statistician concerned, Mr Gerald Hammer (who also contribute to the STILE European user group), in Austria they represent a very small minority (between 0.0028% and 0.0069% depending on the telework definition in use).

The Statistik Austria survey also collected more detailed data on the average duration of telework, allowing two relevant definitions of telework to be selected – those who teleworked at least one hour a week (on average), and those who worked at least eight hours a week (on average). The results suggested that 1.6% of those in employment teleworked for at least 8 hours, while a further 2.3% teleworked for at least one hour.

Regarding occasional telework, in fact, the STILE recommendations suggest using questions that refer to teleworking for more than 20% of working time because concerns about failure to count teleworkers who work less than “one full day” at home and some mobile-only workers have been raised in the past in relation to the UK LFS questions.

The Irish trade union representative on the user group was also concerned that while the STILE approach does allow any association between long working hours and teleworking to be identified, it does not specifically pick out people who are teleworking outside normal business hours (bringing work home).

There has not yet been the opportunity to fully analyse the results of the TELEQE question asked in the Irish ICT survey in 2003. However, early estimates indicate that of the 59,200 persons who work from home and use a computer to do so - approximately one-third indicated that the average hours that they used a computer varied, while for the other two-thirds the average weekly computer usage at home was 16 hours.

Questions to identify whether homeworkers are working outside normal business hours, and about whether work brought home is paid for, have been asked in the US CPS on several occasions.

While this issue is not specifically covered in the STILE methodology, we did include it in one of the optional questions which can be nested within the core indicators, and which had been developed to cover concerns about motivations for teleworking raised by the same Irish user group member. This supplementary question could be included where time and cost allowed.

b6) What is the main reason for working at a distance (from your employer's location)? *(only one answer)*

1. Finish or catch up with work
2. To avoid interruption
3. Because of a bad working environment or bad working relationships
4. Required by job or employer
5. To co-ordinate your work schedule with personal or family needs
6. Experimentation
7. Reduce commuting time or expense
8. Health reasons (your own physical condition)
9. For greater autonomy or independence
10. Some other reason – please specify (_____)

Questions similar to those used in the US CPS could also be included in this way, indicating the flexibility of the STILE approach for tackling issues which may currently be unforeseen, but which data users may wish to have explored in future.

The Irish WORKINT questions are a version of the questions asked in the Eurostat ICT Household survey over the period 2002-2004 by a number of countries¹². Unfortunately, the questions and response options used varied in each year causing problems with comparability. A summary of the results for those countries which opted to use the questions is given below. Unfortunately, it was not possible to get the 2004 results in time for this publication, and we also were unable to get figures for don't knows/non-responses for each question. Under the STILE methodology, the answer options concerning sending work to the workplace would be considered those most closely approaching most definitions of telework, while the answer option on getting information about work opportunities would least fit the STILE approach.

Question	Year	Answer option	CZ	DK	DE	EL	ES	IE	IT	LT	LU	NL	AT	PT	FI	SE	UK
Any member of the household has access to the www	2002		16%	56%		12%			27%	4%	40%	58%			44%		50%
C2 For which of the following work related activities carried out at home did you use the Internet in the last 3 months?	2002																
		Internet not used for work related activities at home			37%	10%	8%		12%		15%		29%		13%	20%	5%
		Finding information relating to your work or business	6%	18%	9%	3%	5%		3%		11%	11%	5%	4%		23%	16%
		Looking for a job/sending job applications	1%	13%	6%	0%	1%		0%		2%		1%	0%	9%	21%	5%
		Sending work carried out at home to work place (teleworking)	1%		2%	0%	1%		1%		3%		2%	0%	7%	12%	7%
		Other work related activities	3%	5%	6%	2%	0%		2%		8%		4%	1%	9%	12%	3%
Any member of the household has access to the www	2003			64%		16%			31%		45%	59%		22%	47%		55%
C10 Did you use the Internet for work-related activities carried out outside the premises of your employer in the last 3 months?	2003	Internet used for work related activities carried out outside the premises of the employer		24%	16%	3%		24%		3%	18%		11%	5%	12%	15%	14%
		Internet not used for work related activities carried out outside the premises of the employer.		38%	37%	13%		7%		22%	35%		30%	21%	54%	41%	20%
C11 Which ones?		At home: Finding information relating to your work or business		21%	11%	2%	10%	6%		1%	14%		8%		8%	11%	9%
		At home: Looking for a job/sending job applications		4%	5%	1%	5%	4%		0%	3%		1%		2%	3%	4%
		At home: Sending work to work place		12%	3%	1%	5%	3%		1%	7%		3%		5%	7%	6%
		At home: Accessing files on the employer's server		9%	2%	0%	4%	2%		0%	5%		2%		4%	4%	4%
		At home: Communication (exchanging and accessing emails)		16%	10%	2%	11%	4%		1%	11%		8%		6%	11%	8%
		At home: Other work-related activities		2%	5%	1%	0%	3%		1%	7%		4%		3%	4%	2%
		At other places outside employers premises: Finding information relating to your work or business		1%		1%		2%		1%	1%		1%	4%	3%	3%	3%
		At other places outside employers premises: Looking for a job/sending job applications		0%		0%		2%		0%	3%		0%	1%	1%	1%	1%
		At other places outside employers premises: Sending work to work place		0%		0%		1%		0%	2%		1%	2%	2%	1%	2%
		At other places outside employers premises: Accessing files on the employer's server		1%		0%		1%		0%	3%		1%	2%	2%	1%	2%
		At other places outside employers premises: Communication (exchanging and accessing emails)		1%		0%		1%		1%	1%		1%	4%	3%	3%	4%
		At other places outside employers premises: Other work-related activities		0%		0%		1%		0%	2%		1%	3%	1%	1%	1%

Future research possibilities

One advantage of using LFS surveys to provide some basic telework statistics is that it gives other researchers using GPS surveys the opportunity to use a smaller LFS-weighted sample in their work in ways which can provide greater credibility and comparability. NOP did this in December 2003 in the UK for a sample of 1,000 people weighted according to the UK LFS and taken from a larger sample of 17,000 Internet users who also reported working out of the office¹³. This indicated that up to 4.1 million people in the UK may be teleworking occasionally (for periods of less than one day, and including work outside the office which is not based at home). However, the reference periods, filtering and definitions are not directly comparable with the UK LFS questions, which are normally asked in the spring quarter. Unfortunately we were not able to get access to the details of the sampling methods or questions used to examine this NOP data any further.

Further information/ brief bibliography

The STILE website contains results of the pilot study, recommendations to Eurostat, detailed analysis of existing questions used in labour force surveys, literature reviews etc.

<http://www.stile.be/publications1.htm>

ONS results from the UK LFS questions asked annually since 1997 are available on request and by payment of a fee from: Labour Market enquiries, ONS, 1 Drummond Gate, London SW1V 2QQ Tel: 020 7533 6176. A summary and analysis of the ONS figures is given in the Hotopp article listed below.

Hotopp, U., Teleworking in the UK, *Labour Market Trends*,

http://www.nationalstatistics.gov.uk/downloads/theme_labour/LMT_June02.pdf, June 2002

Ursula Huws' website contains further analysis and reviews of the UK LFS figures –

<http://dialspace.dial.pipex.com/townparade/hq54/>

Statistik Austria results from the Mikrocensus 2000 enquiry: http://www.statistik.at/katalog-bin/detail.pl?FilePos=16829&Suchbegriffe=PC,Nutzung&Verkneuepfung=&UniqueID=193.170.163.16_1057246400

CSO Ireland results from the Quarterly National Household Survey for autumn 2002 including crosstabulations with age, region, education level etc. and discussion are available at

<http://www.cso.ie/publications/labour/qnhsteleworking.pdf>

¹ PC-Nutzung, Internet, Telearbeit, Statistik Austria, Vienna, 2001.

² 2004 American Interactive Consumer Survey conducted by The Dieringer Research Group

³ <http://www.stile.be>

⁴ For a discussion of definitional issues see <http://www.stile.be/wp2/D2-2%20Final%20report.pdf>

⁵ <http://www.stile.be/wp2/D2-2%20Final%20report.pdf>

⁶ See Workpackage 5 report on pilot study at <http://www.stile.be/publications1.htm>

⁷ See "Measuring Telework" at ???

⁸ <http://www.cso.ie/publications/labour/qnhsteleworking.pdf>

⁹ Hotopp, U., Teleworking in the UK, *Labour Market Trends*,

http://www.nationalstatistics.gov.uk/downloads/theme_labour/LMT_June02.pdf, June 2002

¹⁰ Institute for Employment Studies <http://www.employment-studies.co.uk> – STILE contact Peter Bates.

¹¹ Statistik Austria results from the Mikrocensus 2000 enquiry: http://www.statistik.at/katalog-bin/detail.pl?FilePos=16829&Suchbegriffe=PC,Nutzung&Verkneuepfung=&UniqueID=193.170.163.16_1057246400

¹² Figures supplied to the authors by Eurostat Unit D7 – Information Society Statistics. These figures are not currently available on Eurostat's New Chronos website but may be in future. Try checking for updates at:

http://epp.eurostat.cec.eu.int/portal/page?_pageid=1090,1137397&_dad=portal&_schema=P ORTAL

¹³ Quoted by Geraghty C, NOP 2004, How the Internet can help ease traffic congestion. Presentation at BT conference 'Alternative approaches to congestion'.