

Conditions of Work and Employment Programme

***The definition, classification and measurement of working time arrangements:***

***A survey of issues with examples from the practices in four countries***

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## Preface

Working time has great implications for the quality of working life as well as enterprise performance. Both hours of work and the different patterns in which these hours are arranged have an important influence on a range of terms and conditions of work. For example, the number of hours that people work directly affects their compensation; not only their earnings but also their non-wage benefits, such as paid leave, pensions and even their access to social protection. The number of hours worked and when those hours are worked also has clear implications on matters as diverse as workers' health and safety and their ability to balance work with their family responsibilities. And from the perspective of enterprises, there is a clear link between working time, job satisfaction and productivity.

Recent changes in working time towards greater flexibility indicate that the "standard" workweek is less and less the norm. Various innovative working time patterns, such as hours calculated on an annual basis, flexitime, compressed workweeks, on-call work and teleworking are gradually increasing. However, it is often difficult to capture recent changes in working time patterns by relying on standard statistical methods or instruments. It is against this background that the ILO's Conditions of Work Branch, in collaboration with the ILO Bureau of Statistics, is studying whether and how the current statistical methods can be improved to better capture developments in working time arrangements, and what types of alternative instruments can be utilized for this purpose.

This study explores how working time arrangements are changing, highlighting the limited nature of the information on working time that is available from national labour force surveys and establishment-based surveys. It then considers how those innovative working time arrangements that are emerging, such as annual hours contracts, can be organized and classified conceptually. Finally, the study examines how four countries are attempting to measure working time arrangements in their official statistics: Germany, Italy, the United Kingdom and the United States. The result is a wealth of practical information regarding how statistical systems might be altered to facilitate the measurement of today's more flexible working time arrangements.

A companion paper to this working paper, prepared by Harvey, Gershuny, Fisher and Akbari,<sup>1</sup> offers a perspective regarding how one type of instrument — time-use studies — can potentially be used to better capture developments in working time arrangements. It is hoped that these two papers, taken together, will contribute to the improvement of current working time statistics and the development of new methods of providing improved information sources to assess the impacts of changing working time on workers' well-being.

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Director,  
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<sup>1</sup> A. Harvey, J. Gershuny, K. Fisher and A. Akbari: *Statistics on working time arrangements based on time-use survey data*, Conditions of Work and Employment Series No. 3 (Geneva, ILO, 2003).

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## Introduction

The majority of the population of working age in the developed economies maintains its livelihood by selling labour services to an employer or, as own-account workers, engaging in activities for profit. For the purpose of measuring and monitoring such activity, well-established international statistical definitions exist to define economic activity and to characterize the nature of the employment relationship. Less well-established is the definition and measurement of the *distribution of time* spent by persons engaging in economic activity and *the scope that individuals and/or their employers have to vary this distribution*. We refer generically to these concepts as working time arrangements.

There is a wide perception that working time arrangements in industrial countries are changing rapidly. With greater diversity in the ways that work is organized comes an increasing variation in patterns of working time. But our knowledge of these changes, information about their trends, and our ability to engage in comparisons between countries is severely hampered by weaknesses in official statistical sources and lack of consistency in statistical definitions. Thus key aspects of this evolution in working practices are, as yet, poorly understood. This report discusses some of these changes in working time arrangements and examines the ways in which statistical systems might be altered to facilitate their measurement and monitoring.

The plan of this report is as follows. Section 2 raises issues relating to the need for information on working time arrangements. Section 3 discusses the nature of changes that are taking place, considers the driving forces behind these changes and presents a typology of working time arrangements. Section 4 details the way in which information on working time arrangements is currently collected in official statistics. Choosing four countries as examples, we demonstrate the wide variety of practice that exists in this area of official statistics. We discuss here also some forthcoming developments in the collection of information on working time arrangements that relate to three of the four countries we use as examples. Finally, in section 5 we consider where national and international efforts to improve statistical data collection procedures relating to working time arrangements could be focused.

## Issues requiring statistics on working time arrangements

Changes in the distribution of working time and related changes in contractual conditions governing the employment relationship are of interest for a number of reasons. First, there may well be significant associated welfare gains or losses to workers who experience change in working time arrangements. For example, employers may negotiate with their employees for the removal of fixed weekly working hours and their replacement with more flexible schedules within a fixed annual total number of hours. This could result in a perceived welfare gain for employees if the resulting change in working patterns better matches their preferences. Alternatively, employers may be able to impose such arrangements under threat of redundancy or closure, leading to deterioration in work conditions from the perspective of the employee. Knowledge of these changes, their causes and consequences will help inform the development of employment policies that are designed to improve working conditions whilst promoting efficient employment utilization. Second, labour standards have been developed and implemented in many countries over the last century, specifically to eliminate the exploitation of power in the employment relationship and to promote safe working practices. Many such standards are

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based around the duration and scheduling of working time, including maximum hours of regular work and overtime per day and week (ILO Conventions Nos. 1 and 47 and ILO Recommendation No. 116), minimum periods of rest (ILO Conventions Nos. 14 and 106), and night work (ILO Convention No. 171). These protective standards have been adopted to provide a basic “floor” to labour market standards, which might otherwise be eroded through competition. As the distribution of working time arrangements becomes more varied, it will be important to ensure that labour standards are modified as necessary to prevent this floor from collapsing. Finally, it is important to gain some indication of the nature of changes in working time arrangements, simply because this helps in our interpretation of other statistical measures related to employment. A useful analogy can be made here with statistics on incomes. Two groups of workers may have the same mean incomes, yet the variance of the earnings in one group may be significantly higher than in the other. Such “distributional” information is now routinely reported by national statistical institutes (NSIs) in statistical information on earnings and assists with the assessment of income inequalities, the evaluation of promotion opportunities and the like. In terms of activities related to paid employment, most countries routinely collect statistical information on average hours worked per day, week, month or year, yet we know relatively little about their distribution through time. What information we do have tends to be both patchy, lacking in comparability or poorly specified.

## Changes in working time arrangements

If working time arrangements were both stable through time and fairly uniform in terms of their distribution in the different groups of workers in countries, the need for such information to inform employment policies, assess the scope of labour standards and to measure and monitor labour market developments more generally would be limited. However, we suspect that this is not the case. Limited amounts of evidence are now accumulating to suggest that changes in working time arrangements are taking place fairly rapidly and at an uneven pace when viewed across a number of countries and across different groups of workers within the countries. As will be shown in section 4, detailed information on a consistent basis is not abundant in this area. Nevertheless, a number of sources are indicative of significant changes. In this section, we present a limited review of recent evidence on their extent, discuss the potential forces underlying these developments and attempt a preliminary classification of types of working time arrangements.

## Evidence of change in working time arrangements

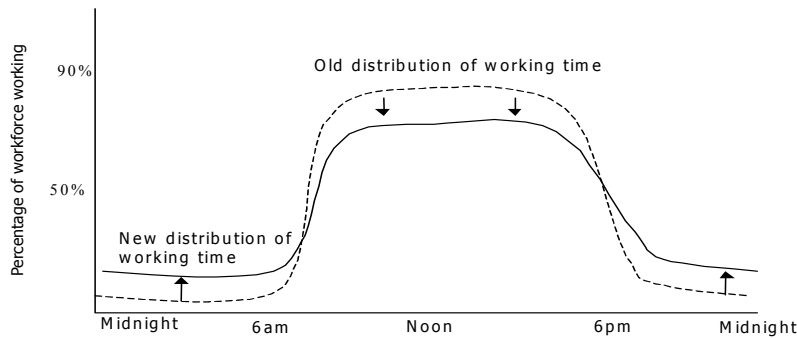
Changes in working time arrangements can be viewed through different time frames. For example, one can choose the perspective of the working day, the working week, month or year. Radical changes in working arrangements from one of these perspectives may have a negligible impact on the others. For example, changes to evening working causes a substantial shift in the distribution of hours worked from a daily perspective, but may not affect weekly or annual hours. Clearly, statistical systems that are intended to capture the full impact of changing working patterns should be capable of taking all relevant perspectives or reference periods for the description of working time arrangements.

For example, using the daily perspective, one might characterize the shift towards the so-called “24-hour society” by measuring the distribution of working time over a 24-hour period. Hamermesh<sup>2</sup> describes this distribution for the United States. We reproduce Figure

<sup>2</sup> D.S. Hamermesh: *Workdays, work hours and work schedules: Evidence for the United States and Germany* (Kalamazoo, W.E. Upjohn Institute for Employment Research, 1996).

1 below from this source. This chart can be likened to 24 “snapshots” of the American labour force, each taken one hour apart over a 24-hour period. In each hour, he records the proportion of the workforce who are which is working at that time. It shows the bulk of work taking place between 7.00 a.m. and 6.00 p.m., with a significant contribution from evening work and a smaller component during the night. One would expect that the move to the 24-hour society would fatten the tails of this distribution as shown in Figure 1 below.

**Figure 1. Work by time of day**

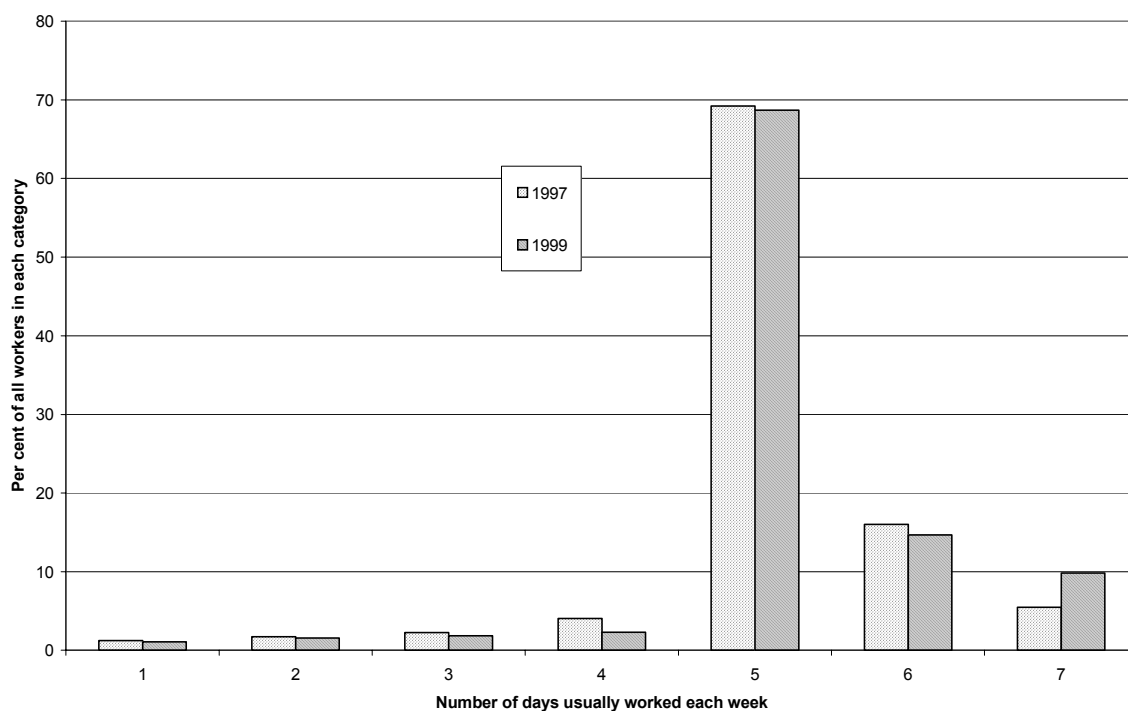


Increased working time flexibility should lead to similar changes in the relevant distributions over other perspectives. For example, we would expect the distribution of working time over a *week* to become less concentrated between Monday to Friday. Here we can point to evidence on the popularity of Sunday trading in the United Kingdom, which confounded even the staunchest proponents of this recent move to liberalize retail trading. Figures 2 and 3 show the changing distribution of the number of days usually worked per week for males and females in the United Kingdom.<sup>3</sup> In these figures we move from the sequence of “one-hour snapshots” shown in Figure 1, to a “one-week” picture. All those who worked for pay or profit during the week form the basis of these pictures. This group of workers is then characterized according to the number of days usually worked in the week. Clearly, although the five-day working week remains dominant (about 70 per cent of men and 60 per cent of women usually worked a five-day week in 1999), significant proportions of men worked more than five days, while significant proportions of women worked less than five days. Interestingly, comparison between the two periods reveals that the percentage of employees who work seven days a week has doubled over this two-year period. This change is particularly evident among females, where the rise in seven days a week working associated with the growth in retail trading on Sunday has almost tripled over this two-year period.

<sup>3</sup> United Kingdom Labour Force Surveys, 1997 and 1999.

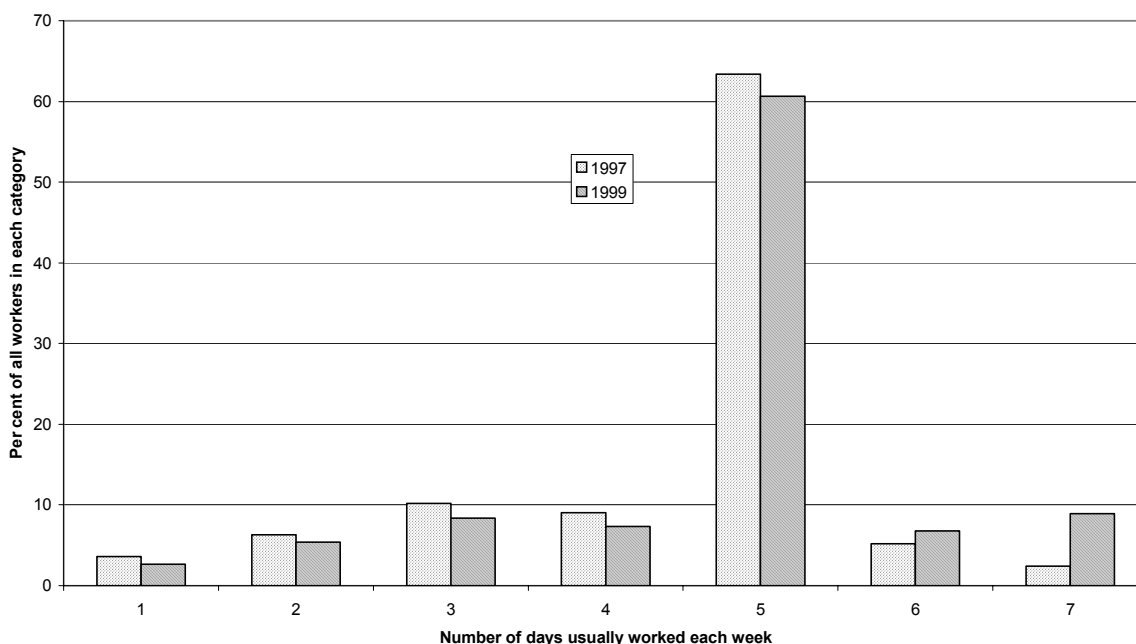


**Figure 2. Changes in the number of days per week usually worked: United Kingdom (Males, 1997-1999)**



Source: UK Labour Force Surveys, Spring quarters, 1997 and 1999

**Figure 3. Changes in the number of days per week usually worked: United Kingdom (Females, 1997-1999)**



Source: UK Labour Force Surveys, Spring quarters, 197 and 1999

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Increased variability in patterns of work is most apparent in the fall in the proportion of employees working a “standard” workweek. Some indication of this can be gained by examining the changing distribution of weekly hours worked. While this does not indicate change in working patterns by time of day or day of week, it does reveal the overall effect on the distribution of hours worked from changes in short-time working, part-time working, overtime working as well as the growth in the number of jobs with “non-standard” working hours. For the United Kingdom, we have computed these changes by calculating the ratio between hours worked for those at the boundary of the first decile in the weekly distribution of hours worked (basic hours plus overtime hours) and hours worked for those at the boundary of the ninth decile. Figures 4 and 5 show these trends for men and women separately. Figure 5 includes unpaid hours (Labour Force Survey respondents are asked to report **all** hours worked, then to report on the number of these which were paid hours). As can be seen, for males there has been a slow but steady widening in the distribution of hours worked over this 13-year period. This is apparent in the distributions of paid and unpaid hours worked. For women, the distribution of paid hours has been remarkably constant. When unpaid hours are included, a similar widening in the distribution as for men can be seen.

Over a longer perspective, changes in *annual hours* need not always involve changes to daily or typical weekly patterns of work. They may be the result of increased holidays. Annual hours are difficult to measure because workers do not normally have a reliable consistent record of working hours, other than those that are requested to keep time diaries. Estimates of annual hours actually worked (as opposed to contracted annual hours) are usually obtained from large and continuous surveys of persons of working age, weighting responses to develop annual estimates based upon the observed cross-sections of weekly hours worked for various groups of workers.

Changes in working time arrangements, and our understanding of the forces that underlie them, will have significance for individual members of the workforce, for employers, and for those with the responsibility to maintain and improve labour standards. Clearly, not all such changes can be classed as improvements in working conditions. In fact, some would argue that the reverse is true.<sup>4</sup> At issue here is the relative balance between the gains for some who find that their ability to combine working time with non-work commitments and leisure has improved and the losses for others who find themselves compelled to work longer or unsocial hours by the same overall social and market developments, without adequate compensation. However, despite the widespread nature of these forces of change, and the underlying perception that working time arrangements are changing in ways that create more pressure on individuals and increase their insecurity,<sup>5</sup> the evidence appears mixed. A recent review of trends in working time arrangements in the United States concluded that:

... the stability of this economic wide average (weekly hours of work) conceals a number of interesting changes that have occurred within certain sub-populations and within the distribution of working hours. First ... wives and mothers have joined the labor force in very large numbers. ... Second ... there has been an increase in the proportion of men who are working extended workweeks. Third ... couples, particularly those with small children, are spending considerably more combined hours at work. ...

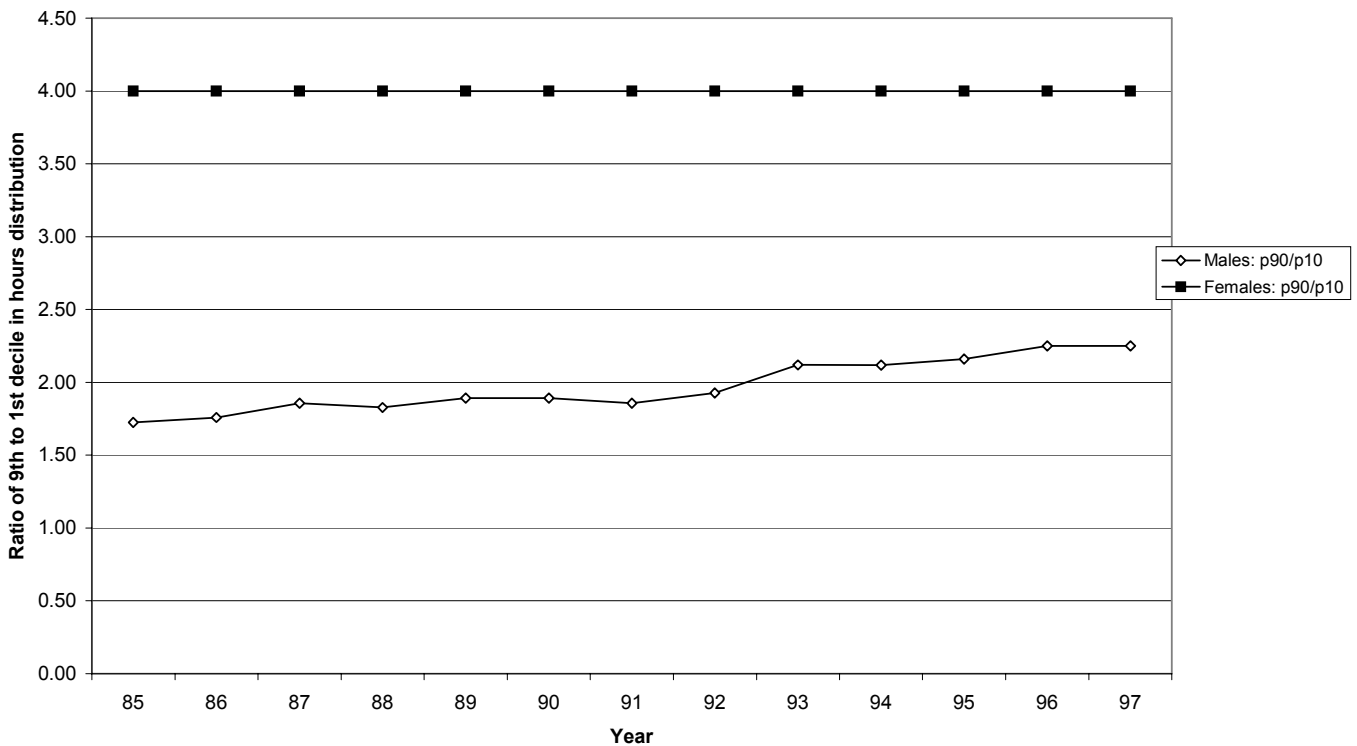
<sup>4</sup> A.R. Hochschild: *The time bind: When work becomes home and home becomes work* (New York, Metropolitan Books, 1997).

<sup>5</sup> J. Robinson and G. Godbey: *Time for life: The surprising ways Americans use their time* (University Park, PA, Pennsylvania State University Press, 1997); and OECD: “Chapter 5. Working hours: Latest trends and policy initiatives”, in *Employment Outlook*, June 1998.

.... traditional work hours and time off benefits are changing ... labor force data show the proportion of wage and salary workers indicating they had some flexibility in their work schedules increased from 16 per cent in 1991 to 30 per cent in 1997.<sup>6</sup>

Hamermesh<sup>7</sup> (1999) provides further evidence from the United States in his study of the changing distribution of working hours over the day. Covering the period from 1973 to 1991, this study reports a reduction in evening and night working and an increase in the variation in starting and finishing times of work undertaken during daylight hours. It appears, therefore, that reports of a move towards a “24-hour society” tend to over-exaggerate the observed trends in the United States. What these recent analyses do reveal, however, is that *working time arrangements* are undergoing rapid change and that many members of the workforce perceive these changes as to their detriment. These are important issues that are likely to continue to increase in significance over the next decade, for reasons that are outlined in the following sub-section.

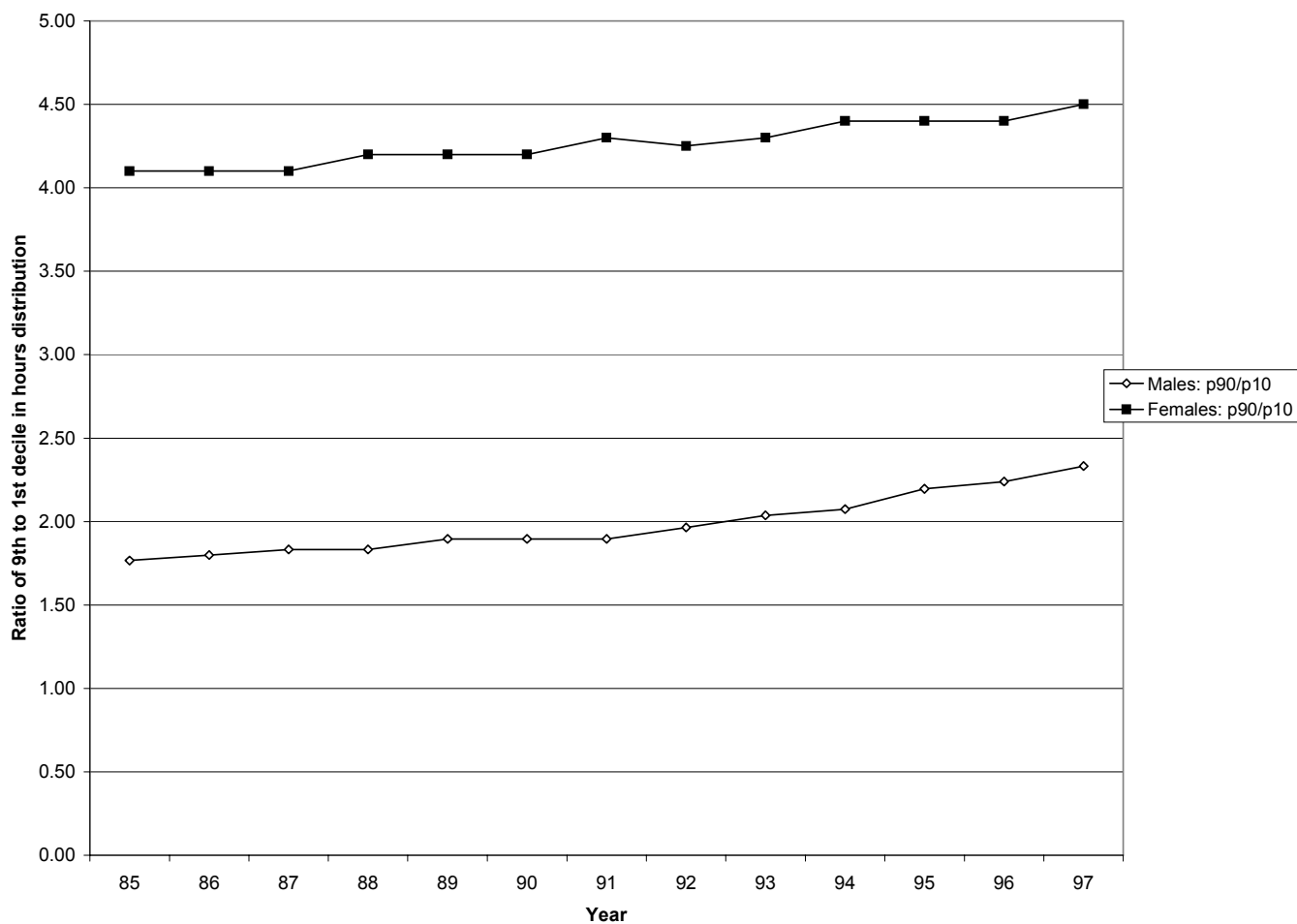
**Figure 4. Changes in the distribution of weekly hours (basic hours plus paid overtime) by gender: United Kingdom (1985-1997)**



<sup>6</sup> US Department of Labor: *Report on the American workforce* (Washington, DC, 1999).

<sup>7</sup> D.S. Hamermesh: “The timing of work over time”, in *Economic Journal*, Vol. 109, 1999, pp. 37-66.

**Figure 5. Changes in the distribution of weekly hours (basic hours plus paid and unpaid overtime) by gender: United Kingdom (1985-1997)**



### Factors underlying changes in working time arrangements

Before moving on to discuss issues relating to the definition and classification and measurement of working time arrangements, we consider the variety of factors associated with these changes and which may well be driving them.

Firstly, it is arguable that an increase in exposure to competitive market forces, arising through technological improvements in communication, deregulation and the liberalization of trade, may have caused some employers to find ways to reduce total costs, including labour costs, by finding ways to restructure working time arrangements. To be more precise, employers' efforts to reduce labour costs and maintain profitability could have resulted in various pressures on the arrangement of working time. These are:

- a. The pressure to minimize stockholding and to schedule manufacturing processes to provide output at a particular time.

The timing of output is important because patterns of demand are becoming more time dependent. An example of this is the increased use of “just-in-time” manufacturing processes.

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- b. The need to monitor workers by outcomes rather than by process.

With the shift away from large-scale “Fordist” production techniques, the character of work has changed. It has become more oriented to workers undertaking individual, non-standardized tasks. Such tasks are more difficult and costly to monitor than standardized production line work. Because of this increased monitoring cost, employee performance is more likely to be assessed by the outcomes of tasks rather than by continuously monitoring labour input. If it is only outcomes that matter, employers can give employees greater latitude over the timing and location of work so long as output, including delivery time, is not jeopardized;

- c. The pressure to minimize total costs through enhanced flexibility to meet unexpected changes in product demand

To maintain competitiveness, employers may wish to give workers contracts that are designed to avoid paying premium rates for workers' time yet allow employers to vary labour inputs at short notice without incurring additional fixed costs. Such contracts will involve setting variations in patterns of working time over specified time periods that the employer can require of employees without variations in the hourly rate of pay.

- d. Shift in overall consumer demand from goods to services

The shift from manufacturing to services brings with it a shift from the quality of a product to the quality of a service. The latter can only exist at the time of the service delivery. Together with the growth in demand for services outside normal working hours, this has led to an increase in demand for labour to provide such services outside normal working hours. An example of this is the growth of employment in telephone call centres.

Secondly, the increase in labour force participation (mainly of women) in developed countries and the associated increase in GDP have enabled a significant proportion of workers to “buy” improvements in their working conditions. These improvements may contain elements —such as better health and safety arrangements — but also often include more desirable arrangements of working time — such as more flexible starting and stopping times to accommodate, for example, child-care arrangements. Employers that can offer remuneration “packages” that include such flexibility may be better placed to recruit and retain a productive workforce. Thus, on the supply side of the labour market, employees increasingly wish to provide labour so as to:

- Suit their household and social commitments that have changed because of the increased proportion of workers who are married women with children and/or older family members who need care.

They want to work at times that do not conflict with other demands on their time. Commitments to family life have to be scheduled alongside the requirements of work. Employers that wish to retain and hire employees with such commitments have to be aware of these considerations;

- Meet their desired combination of income and leisure time.

The greater the variety of jobs offered both in terms of their total hours requirement and the timing of the work, the more likely is an individual to find a “match” that meets his or her requirements.

Another important change that has taken place in the labour market is the growth in homeworking. Increasingly workers are carrying out work at home that would previously have been carried out in an office. This is the result of two factors that have already been

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mentioned, namely employers' increasing preferences to monitor outcomes rather than processes and employees' wishes to meet their own household preferences. But this switch to homeworking also derives from the growing importance of that part of the service sector which involves the collection and transformation of information, combined with the expanding availability of new technology. In contrast to manufacturing, much work in this service sector can be carried out by an individual working alone, with a small amount of capital equipment. That equipment is often a telephone and/or personal computer, the real costs of which and their use have been steadily decreasing. Homeworking is another aspect of working time flexibility that has been given little attention in statistical surveys, though as we shall subsequently see, a recent module included in the US Current Population Survey has treated this issue in some depth and there are now questions on home computer use in the German Socio-economic Panel Study and on homeworking in the UK Labour Force Survey.

No industrial country is immune from the pervasive effects of these pressures. Garhammer<sup>8</sup> describes the situation in Germany and the rest of the European Union (EU) as follows:

If one takes a look at the current public debate discourses not only in Germany, but in all countries of the European Union, regarding working hours, the model that underpins those discussions becomes obvious: the prevailing ideas of annual working time models, expanding shop opening hours as well as the expansion of the working week to seven days, are generally accepted as legitimate ways to reduce costs and pay-back periods. As the major political parties might put it, we are faced with efforts to secure Germany's future as a production site (*Wirtschaftsstandort*). This requires machines to broaden over longer hours, shops to stay open in the evening, and employees to work flexible working hours. In the context of such discussions, social scientists and time budget researchers need to focus on one question: how does such a change in working times affect the workers and their families and how does it affect the country as a place to live?

Thus employees are facing pressures or are choosing to move towards more variety in forms of work organization. Employers are becoming increasingly sophisticated in finding working patterns that satisfy such demands. In the next sub-section, we attempt to classify and characterize these changes.

## A typology of working time arrangements

While we have indicated that there is evidence of change in working time arrangements, there is an important distinction to be made between the *potential* for change in working time arrangements and the *actual* changes that may be recorded via statistical measurement. For example, employees may negotiate for and be offered flexibility in their working time arrangements enabling them to vary their daily start and finish times by up to one hour either way. The net effect on total working hours and on average start and finish times for group of workers may be negligible. Yet the workers concerned may feel that such arrangements offer substantial benefits over previous, more rigid, working time contracts.

In reviewing the nature of contractual arrangements that govern or relate to working time, we require a typology that classifies their various forms in a manner which is both meaningful and which has some conceptual basis. This is problematic, given the non-

<sup>8</sup> M. Garhammer: *Working times and everyday life in Germany. The use and value of time: New directions in data collection and analysis*, paper presented at the International Association of Time-Use Research, 2-4 September 1996.

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standard use of terminology in this area. Traditionally the contract between employers and employees governing working time has been viewed within one of two main categories. These were:

1. *Fixed basic weekly hours* with stipulated rates of pay for overtime working and annual allocation of days off for holidays. The majority of such agreements would also stipulate the times during the week at which the employee would be at the disposal of the employer. Such contracts were particularly common for all kinds of administrative staff in the public and private sector.
2. *Shift-working* which is used in situations where the labour services that are required are regular and predictable and stretch beyond the regular working day. Shift work implies a regular pattern of working, often at unsociable hours. The employer might have latitude to change this pattern and most frequently this would be done on a rotational basis. Annual holidays and payment schedules for overtime would also be included in this agreement. Such contracts were particularly common for the operational staff of public transport, in media and entertainment, in certain types of manufacturing, e.g. those requiring 24-hour continuous operations, in health services, etc.

In recent years, for reasons discussed, more complex contracts have emerged. Some of the main examples are described below. We also consider recent developments in shift-work contracts.

### ***Annual hours contracts***

Annual hours contracts set out a target number of hours to be worked during a year. Firms typically retain the option to require workers to supply more or less hours than this target, depending on the state of demand. However, this flexibility is limited to a precise band by the agreement. For example, the agreement might include a target that workers supply 1,800 hours per annum. This might be qualified by a 200-hour flexibility band around the target. Thus, if demand is weak, the employer has the right to reduce hours worked to 1,600 hours. If it is strong, annual hours can be increased to 2,000, without any requirement that the employer pay overtime rates. However, if hours exceed this limit, overtime payments will have to be paid, as laid out in the contract.

Annual hours contracts have been introduced by firms to provide additional flexibility in working time arrangements. It is estimated that 600,000 employees in the United Kingdom are on this type of contract.<sup>9</sup> It is clear that that number is likely to increase.

*"Working time organised on an annual hours basis is an established feature of some parts of manufacturing industry, especially where continuous processes or seasonal peaks and troughs are involved. But the need to match working patterns more closely with customer demand has seen this concept also being adopted in the service sector, where weekend working and extended opening hours are becoming increasingly common."*<sup>10</sup>

<sup>9</sup> UK Labour Force Survey.

<sup>10</sup> Income Data Services: *Hours and holidays 1999*, IDS Study No. 677 (London, October 1999).

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From the employers' perspective, annual hours contracts, as well as other kinds of contracts with "long" reference periods, have the following benefits:

- overtime working can be reduced or eliminated;
- working time can be planned to allow for predictable variations in demand;
- hiring of temporary staff at short notice can be reduced or eliminated;
- with the year, rather than the week as the metric, it is easier to introduce and gain acceptance for moderate reductions in working time;
- labour costs may become more predictable. Where variations in demand are moderate (i.e. such that annual hours actually worked remain within the contracted annual total), then no unpredictable overtime premia are incurred;
- they can be introduced as part of an overall package intended to change working culture.

From the employee's perspective, annual hours contracts:

- often allow greater control over their working time, since work schedules are generally agreed at a lower level in the company than is the case with traditional contracts. So long as output targets can be met on time, employees can select to take their leisure time when it best suits them, as long as they are outside "peak" periods;
- make working time and therefore income more predictable over a 12-month horizon.

These contracts seem to offer certain advantages to both employers and employees and might be expected to become more common in industrial countries. Yet statistical systems tend to focus on measuring weekly hours of work and thus are not well suited to capture the main elements of an annual hours contract.

### **Zero-hours contracts**

Zero-hours contracts imply that employees are not allocated fixed hours in advance of the actual work episodes. The workers can be called upon to work whatever hours the employer requires. These contracts clearly are unlikely to attract good quality workers unless wage compensation is high. In the United Kingdom, approximately 136,000 workers have such contracts. It is estimated that the following quote from the Industrial Society gives the workers' perspective:

"A zero hours contract means that an employee has no fixed hours and can be called into work for as few or as many hours as the employer requires. The advantages to the employer in flexibility—but not in loyalty—are obvious.

We share the concern about these contracts in that they cross the line between flexibility and exploitation when they are operated ruthlessly. As such they damage partnership and encourage further casualisation of the workforce. We are also concerned that young people and women whose circumstances may give them little choice are often employed on zero hours contracts.

Individuals need a basis of security in time and reward to sustain morale and well being which these contracts deny.



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A worker may well need more than one job to earn a decent living. How can they make themselves available for other work if they are waiting on the requirements of the zero hours contract?<sup>11</sup>

Workers may not be paid for time when they are not working but on call on the employer's premises. At the very least, workers should be paid at the rate of the National Minimum Wage for the time they are on call at a workplace other than their residence."

Despite these concerns, there may be a growing employer demand for such contracts within the spectrum of working time arrangements. Some supply chains, particularly those that involve small businesses and the self-employed, may simply be formalizing an otherwise informal supply relationship by offering zero hours contracts to their suppliers. The use of a contract in these situations changes the nature of the employment relationship from a contract for services to an employment contract. It is unclear how this might affect the individual concerned. However, it is probably the case that zero hours contracts imply a deal of income insecurity for the workers as employers are shifting risk from themselves to their employees. Again, standard LFS questions on weekly hours are unlikely to pick up this potential instability. Without specific information on the type of contract that the worker holds, questions on hours of work will not convey the uncertainty that this form of working time arrangement implies for workers.

### ***Flexible hours contracts***

Both annual hours contracts and zero hours contracts are designed to provide employers with greater flexibility in the arrangement of working time. These can be viewed as occupying the extreme end of a spectrum of flexible working arrangements that are now in operation in industrialized countries. The annual hours contract sets out a framework for working time over a long horizon – a year – while under zero hours contracts, that framework may not be set out much more than a day. Between these extremes, there are alternative frameworks.

The flexible hours contract (often called “flexitime working” or “flexitime”) is arranged on a working week or month basis. Within each accounting period, the employee usually has to be present at a work between certain “core hours” (say between 10:00 a.m. and 4:00 p.m.). The difference between core hours worked and contractual hours for the week or month is as follows: outside the core period, employees can choose freely or arrange with immediate supervisors to vary their start and finish times within a “bandwidth”. Bandwidth is defined as the amount of time between the earliest allowable start time and the beginning of the core period and the period from the end of core hours to the latest permissible working time. Some schemes allow employees to cumulate additional hours over and above their contractual hours in the accounting period and to arrange a full day off in lieu. Flexitime schemes require employees to record their start and finish times. These recording systems vary in their technical aspects, from self-completed paper-based timesheets to sophisticated entry-and-exit key systems. Most schemes deal with employees who fail to record their hours by assuming that they have worked core hours only.

<sup>11</sup> Select Committee on Trade and Industry: *Minutes of evidence: 14 July 1998*, memorandum submitted by the Industrial Society (London, HMSO, 1998).

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## **Modifications to shift-working contracts**

While these new forms of contract have emerged to meet the changing requirements of employers and employees, some changes have occurred with the more traditional contracts, particularly shift-working. As working practices change to accommodate the needs of the "24-hour economy", the incidence of shift-working is increasing. Again, taking the United Kingdom as an example:

"Certain manufacturing industries, such as chemicals and steel making, have traditionally operated around the clock, seven days a week. But now with the spread of the 24-hour economy, these workers are being joined by a growing band of service sector employees in areas such as call centres and supermarkets. Overall, some 3.8 million now regularly work some type of shift pattern."<sup>12</sup>

There is also evidence of increasing amounts of shift-working in the European Union.<sup>13</sup> Many forms of shift-working are used in industrial economies. The following types of shift-pattern are commonly worked:

- *Alternating days/nights.* This is common in the car industry. A day shift and a night shift are worked, with a gap at the end of each shift. This gap can be used for maintenance and/or overtime.
- *Double day/two shift.* This system incorporates two day shifts, the second starting immediately after the first ends. With a shift length normally of around eight hours, this implies no night cover. Shifts are usually altered weekly or over longer intervals.
- *Three shift semi-continuous.* This system provides continuous cover during most, but not all, of the week. Usually five and occasionally six days are covered. A common pattern is 6:00 a.m. to 2:00 p.m. (day), 2:00 p.m. to 10:00 p.m. (back) and 10:00 p.m. to 6:00 a.m. (night). Usually workers rotate this shift pattern on a weekly or fortnightly basis.
- *Continuous shift-working.* This shift work pattern provides continuous cover for all 168 hours in the week. Telephone banking and call centres often provide this form of cover. Like semi-continuous shift-working, this pattern can also be rotated. Common rotations are two mornings, two afternoons, three nights or 2-2-3. Usually these patterns are repeated over a five- or six-week cycle, with a certain number of free days built into the programme.
- *Extended day shifts.* These are worked where working patterns require some weekend working. For example, a four-day on, four-day off pattern inevitably encroaches on the weekend.
- *Split shifts.* These are full shifts divided into two distinct parts with a gap of several hours in between. These tend to be used in industries where peak demands occur at different times of the day, e.g. public commuting transportation systems.

<sup>12</sup> Income Data Services: *Shiftworking*, IDS Study No. 663 (London, February 1999).

<sup>13</sup> OECD: *Implementing the jobs strategy: Member countries experience* (Paris, 1997).

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In the United States, somewhat similar shift patterns are used. Two-thirds of manufacturing plants use a rotating shift pattern, while the remainder work fixed shifts. The lengths of shifts are almost evenly split between eight and 12 hours. Anxo and Taddei<sup>14</sup> conclude that where shift-working has increased, the growth has mostly been in two-shift patterns of working. Nevertheless, given that shift-working has been associated with various forms of health concerns, there is an argument for recording the type of shift pattern that employees work.

The introduction of the EU Working-Time Directive has resulted in particular problems for the classification of shift-working. For example, are workers who work nightshifts under a rotating three-shift system “nightworkers” under the provisions of the Directive? Again, information on compliance can only be achieved if information on the nature of the worker’s contract is available. Not only is it necessary to know that the worker is a shiftworker, but also the type of shift system that is being worked.

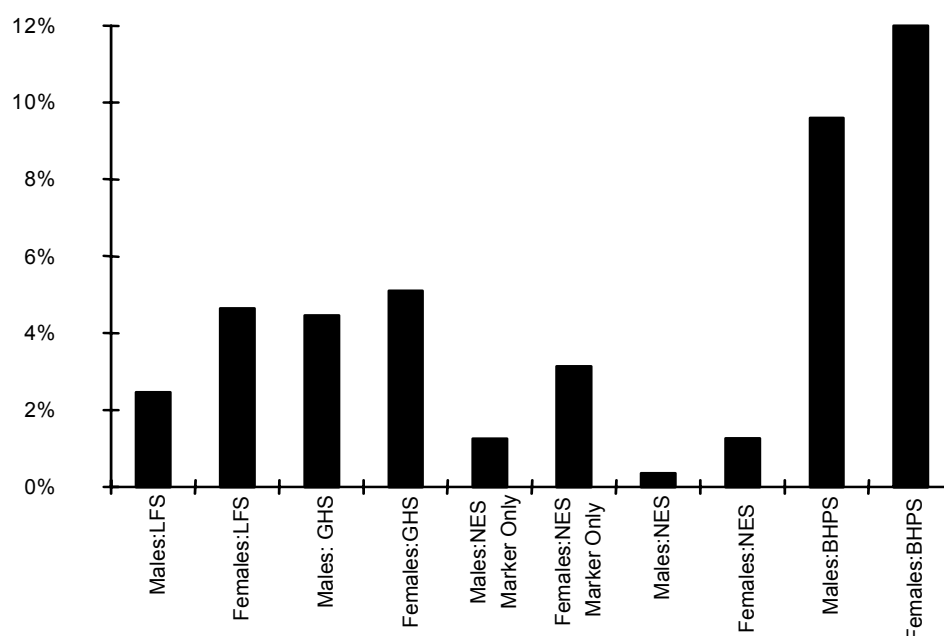
### **Multiple jobholding**

One increasingly important aspect of working time flexibility is multiple job holding, termed “double-jobbing” in the United Kingdom and “moonlighting” in the United States. Multiple jobholding does not fit well into our typology of working time arrangements, in that it has no direct contractual basis and that it is a characteristic of an individual rather than of the jobs this individual holds. However, it relates to the multiplicity of work arrangements and may well be a consequence of changing work patterns. As the variety of working patterns has increased, some workers have a need to combine different jobs on a daily, weekly or monthly basis. Such patterns have, in the past, typified the work schedules of a small number of low-paid workers, many of whom have to sought to combine a number of low-paid jobs with short daily or weekly hours to generate sufficient income. However, the increasing variety of working time arrangements now makes it more feasible for individuals across the spectrum of work to engage in multiple jobholding.

The extent of second jobholding is notoriously difficult to measure with accuracy. Figure 6 shows the range of estimates of rates of second job holding in the United Kingdom for 1994, developed from a number of different sources.

<sup>14</sup> D. Anxo and D. Taddei: “Shiftwork and capital operating time in industry: A comparative international survey”, in D. Anxo et al. (eds.): *Work patterns and capital utilization* (Dodrecht, Kluwer Academic Publishers, 1995).

Figure 6. Estimates of second job rate: United Kingdom (1994)



The difference between these estimates indicates how important are both the source from which a response is collected and the question that is asked. By far the highest estimates, at 9.6 per cent for men and 12 per cent for women, are those from the British Household Panel Study (BHPS). These estimates give a broad upper estimate of the rate of second jobholding, arising from lack a precise reference time frame in the question asked. The question asked in the BHPS is whether you have a second job, an odd job or a job that you might do from time to time. The estimates obtained from the New Earnings Survey (NES) have serious limitations due to the administrative difficulties in its collection, its lack of information on both the self-employed and those with very low earnings. The Labour Force Survey (LFS) estimates are linked to a particular week, and though this means that its results are biased to second jobs of longer duration if one wants to estimate the number of “second-job” holders during e.g. a calendar year or the number of hours worked in such jobs during the year, it does give a greater degree of precision in what it is measuring than is the case with the other sources.

International studies of multiple jobholding have largely relied on cross-sectional household-based surveys similar to the LFS. For example, Kimmel and Powell<sup>15</sup> use Current Population Survey data from the United States and the Canadian Labour Force Surveys: these provide estimates of overall rates of second jobbing for these two countries of 6 per cent and 5 per cent, respectively. The LFS-based estimates suggest an overall rate for the United Kingdom of 4 per cent.

<sup>15</sup> J. Kimmel and L.M. Powell: *A comparative analysis of moonlighting and related policy issues in Canada and the United States*, paper presented at the Changes in Working Time in Canada and the United States Conference, May 1996.

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Comparative data on moonlighting in the US and Canada<sup>16</sup> suggest that better educated workers are more likely to moonlight and that most moonlighters take a second job for financial reasons. Married men and single women are more likely to moonlight. Interestingly, with the exception of American females, moonlighters work longer than non-moonlighters even in their primary job. Their total hours are considerably in excess of those who do not choose to take a second job. This finding is particularly important for those with a policy interest in excessive working time. The main difference between the United States and Canada is that men tend to moonlight more in the United States.

## Statistics on working time arrangements

From the preceding discussion, it is evident that there are two key features of working time arrangements. These are:

- the contractual basis of the employment relationship, specifically the references within this to working time arrangements;
- the outcome of this relationship, measured variously in terms of the number of persons with different patterns of hours worked over the day, week, month or year.

Here we concentrate on how these issues are managed in major statistical sources from four industrial countries: Germany, Italy, the United Kingdom and the United States. It will be shown in what follows that statistical information gathering has tended to focus upon the second of these features, the outcome of the working time arrangement. While this is clearly an essential element for the purpose of monitoring changes in working time arrangements, it yields only a partial picture of change taking place within the labour market. As an example, consider two countries in which the majority of employees work from 9:00 a.m. to 5:00 p.m. with a one-hour lunch break, five days a week with five weeks' annual leave. In one country, 20 per cent of these employees are on annual hours contracts to provide 1,645 hours per year. In the other country, no annual hours contracts exist, employees are simply contracted to provide 35 hours' work per week for 47 weeks per year. No apparent difference in working time arrangements would be observed via statistical information on hours worked. However, in response to major exogenous demand shocks, the country with one-fifth of its workforce on annual hours contracts has a potential competitive advantage over the country without such working time arrangements. While the scale of such advantage will depend upon the relative costs of overtime and short-time working, evidence about its existence may not be revealed without evidence on the nature of the employment contract.

From our review of working time arrangements, it is clear that the main statistical sources which could provide relevant information are the large-scale surveys which collect information on employment activities via household interviews. In the European Union these are termed Labour Force Surveys (LFS) and are currently organized to collect information on an annual basis from more than 1.5 million persons each year. In the United States, the equivalent source is the monthly Current Population Survey (CPS), which yields detailed information from over 50,000 persons each month. Other sources exist, but these have weaknesses for the study of the extent of, and changes in, working time arrangements. In Germany, the United Kingdom and the United States, regular panel surveys (individuals or households which are re-interviewed on an annual basis) provide some additional information, but the sample sizes are generally too small to track and

<sup>16</sup> *ibid.*

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explore some of the changes in working time arrangements that are taking place among relatively small groups of workers. Additional sources tend to be more qualitative in nature. For example, in various parts of this report, we have discussed information from an organization in the United Kingdom named “Incomes Data Services”. This organization monitors the negotiated agreements between employers, employer organizations, and employees or their representatives. By extrapolating these agreements to the populations of workers they cover, estimates are obtained of the “coverage” of employees by type of working arrangement.

All countries have well-established methods to measure and record weekly hours worked. These estimates are usually derived from a variety of sources: not only from household-based labour force surveys in the European Union and the CPS in the United States, but also from establishment-based surveys and enquiries which provide information from specific individuals or are establishment-wide averages of weekly hours worked. Such information is usually available by type of worker (e.g. by gender, age, ethnicity), type of job (sector of activity, size of establishment, occupation) or type of contract (permanent, temporary, part-time, full-time). However, none of these informs us about the nature of the working time arrangements. In what follows, we have concentrated upon three issues: the nature and extent of information collected in large-scale surveys which informs us about working time flexibility; the nature of the information collected on patterns of shift-working; and the scope for working from home.

## **Flexibility in working time arrangements and work scheduling**

For a number of reasons, this is undoubtedly the most difficult aspect of statistical measurements associated with working time arrangements. First, statistical measurements on the nature of the employment contract are hampered through lack of any consistent set of definitions about contractual relationships. As was revealed in an ILO world survey of statistical practices relating to the measurement of status in employment,<sup>17</sup> there exists remarkably little basic statistical research in countries relating to the contractual basis of the employment relationship. Secondly, there is no clear interpretation of the concept of “flexibility”. This is apparent from the following comparison.

In the United States, questions on flexibility focus upon the potential scope an individual has within the employment relationship to vary start and finish times. This should encompass what are termed “flexitime” arrangements in the United Kingdom, but will also cover many employees who have the scope to vary their hours without this being formally recorded in their employment contract. In other words, the phrase “flexitime” in a British context is now understood to refer to a formal arrangement that delimits with some precision the extent to which an employee has scope to vary his or her hours worked. Where terminology is sufficiently standardized and well understood by employees and employers, it becomes feasible to collect information through questions that relate to this specific aspect of the employment contract. However, this does not ensure that comparable information can be obtained. The Current Population Survey in the United States asked, in a supplement to the May 1997 survey:

Do you have flexible work hours that allow you to vary or make changes in the time you begin and end work?

<sup>17</sup> P. Elias: “Status in employment: A world survey of practice and problems”, in ILO: *Bulletin of Labour Statistics*, No. 1, 2000, pp. xi-xxi.

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Clearly, this is a broad definition of flexible working time arrangements and is quite different from the question placed in the British Labour Force Survey:

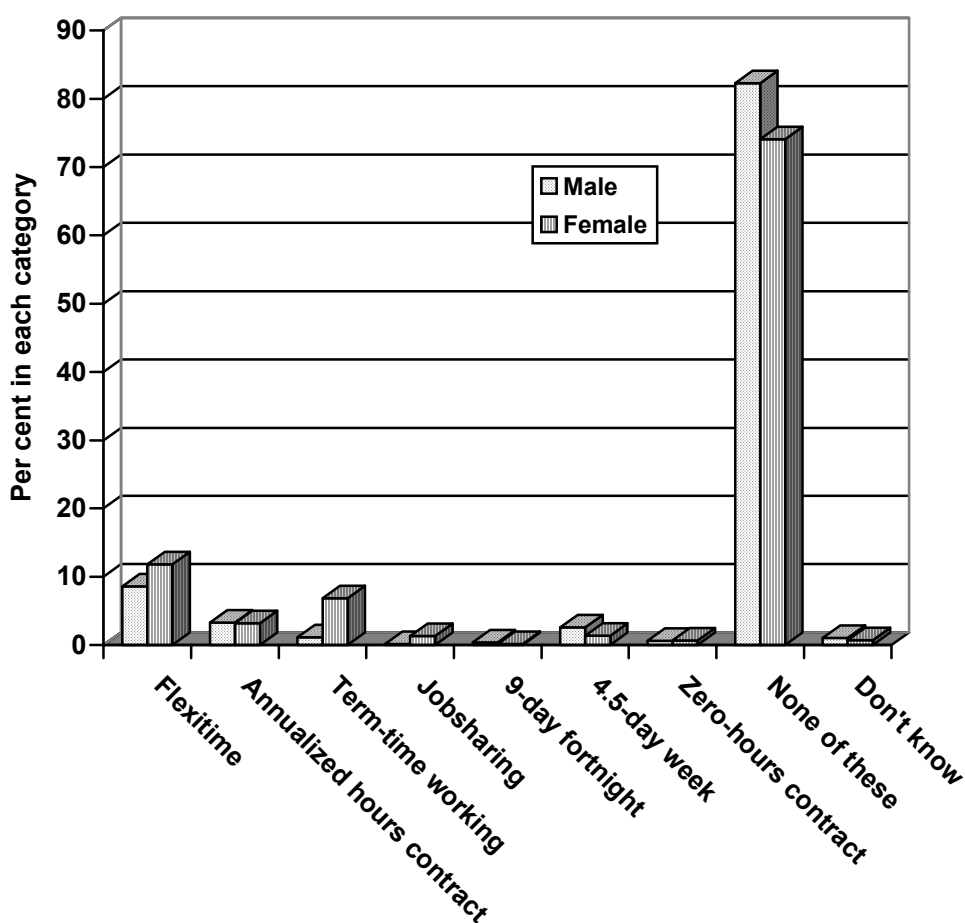
Some people have special working hours arrangements that vary daily or weekly.

In your (main) job, is your agreed working arrangement any of the following?

1. flexitime (flexible working hours)?
2. annualised hours contract?
3. term time working?
4. job sharing?
5. a nine-day fortnight?
6. a four-and-a-half day week?
7. zero hours contract?
8. none of these?
9. don't know days worked

The first response in this set, together with the question wording, makes clear the notion of this being a special (contractual) arrangement with the employer. In contrast, the American question would apply to some groups in the United Kingdom where the employee has the scope to vary his or her hours worked, but this flexibility does not form part of the employment contract (e.g. as in many professional occupations). As was quoted in the section on **Evidence of change in working time arrangements**, the response to this question now indicates that 30 per cent of wage and salary workers now report some flexibility in their work schedules in the United States. For the United Kingdom, Figure 7 below shows the distribution of employees according to the above classification as recorded in the Autumn 1998 quarter of the British Labour Force Survey. Only 10 per cent of employees in the United Kingdom report “flexitime” arrangements. With regard to the other responses in this set, it is not clear how these categories were conceived, tested and developed. Analysis of the resulting information shows that some of the categories are so small as to be virtually undetectable.

Figure 7. Employees with special working arrangements, United Kingdom (Autumn 1998)



Source: UK Labour Force Survey, September-November 1998

Apart from direct questions on flexibility in working time arrangements, one of the simplest, yet most effective, ways of investigating changes in work schedules and working-time arrangements is to ask individuals when they started work and when they finished. Such questions are likely to yield useful data on changes in the pattern of working time, because they will indicate the extent to which employees are working outside the previously accepted norms of working time. The CPS questionnaire does this very simply by asking respondents when work started and when it ended. It follows up by asking how many days were worked and which days. This enables a fairly clear picture of the weekly working pattern of individuals to be developed. The British Labour Force Survey asks similar, but not identical, questions. For example, it asks whether individuals work evenings, nights, Saturdays or Sundays. The German Socio-economic Panel Study asks how many hours individuals work on a typical weekday, Saturday or Sunday. As will be elaborated later, Italy, Germany and the United Kingdom all provide information to Eurostat on whether or not a person works Saturdays and/or Sundays.

The questions asked in the American CPS are reproduced below.



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### **Time work started last week**

LAST WEEK at what time of day did (you/name) begin work on (your/his/her) [main job/job][in (your/his/her) business/in the family business] most days?

### **Time work ended last week**

LAST WEEK at what time of day did (you/name) end work on (your/his/her) [main job/job][in (your/his/her) business/in the family business] most days?

A. AM

P. PM

### **Number of days worked in a week**

Including work done at home, the workplace, or any other location, how many days of the week (do you/does name) work [ON THIS JOB/FOR THIS BUSINESS] [ONLY]?

1:7 Number of day worked

### **Days of the week worked**

Which days of the week (do you/does name) work [ON THIS JOB/FOR THIS BUSINESS] [ONLY]? (Check all that apply.)

1 Sunday

2 Monday

3 Tuesday

4 Wednesday

5 Thursday

6 Friday

7 Saturday

A new set of questions concerning working time patterns was introduced into the British LFS in the Spring 1999 questionnaire. These are:

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### **Time of day worked**

*Within your regular or normal pattern of work, is it usual for you to work...*

*during the day?*

*during the evening*

*at night?*

### **Daytime working**

*Do you ever work during the daytime...*

*1 most of the time*

*2 occasionally*

*3 never?*

### **Evening working**

*...during the evening?*

*1 most of the time*

*2 occasionally*

*3 never?*

### **Night working**

*...at night?*

*1 most of the time*

*2 occasionally*

*3 never?*

### **Days of the week worked**

*On which days do you usually work?*

*1. Monday*

*2. Tuesday*

*3. Wednesday*

*4. Thursday*

*5. Friday*

*6. Saturday*

*7. Sunday*

### **Saturday working**

*Do you ever work on Saturdays?*

*Yes*

*No*

### **Sunday working**

*Do you ever work on Sundays?*

*Yes*

*No*

The German SOEP asks workers whether or not they worked overtime, then follows with questions of what can be done with overtime hours worked. For example, can they be “banked” to allow workers to take time off at a later date?

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### **Whether or not works overtime**

Do you occasionally work overtime?

*yes, hours*

*no*

*not applicable, self-employed*

### **Compensation for overtime working**

If you do overtime, are you usually paid, given days in lieu, or aren't you paid at all?

*given days in lieu*

*half and half*

*paid*

*not paid*

### **Flexibility in use of overtime**

For your accumulated overtime can you take whole days off or are you limited to hours at a time?

*can take whole days*

*only hours*

### **Situation last month**

What was it like last month: Did you do any overtime then and if so how much?

*yes, hours*

*no*

From this review it is apparent that there is, at present, considerable variation between countries in the extent and comparability of information on the structure of the working day and the working week. Given the nature of survey questions asked in the United States, it is possible to construct details of the *typical* pattern of paid work undertaken over a 24-hour period. However, for many American workers, as in Europe, the pattern of any hours worked on Saturday and Sunday may not be typical of other days of the week. The Labour Force Survey questions available within the European Union do give some information on the broad pattern of days worked within the working week, but fail to indicate with any precision *when* on those days work took place.

## **Shiftworking**

Measuring the type of shift-work schedule is regularly done in both the United Kingdom and the United States. It is these countries that appear to have most experience in asking about the **contractual basis** of working time. Both countries ask questions about the type of shift worked. In addition, the CPS questionnaire tries to establish *why* a particular shift pattern is worked.

Relevant questions asked in the American CPS are:

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### **Regular daytime schedule worked**

On (your/his/her) [main job/job] [in (your/his/her) business/in the family business]  
(do/does) (you/name)

USUALLY work a regular daytime schedule or some other schedule?

1 A regular daytime schedule (anytime between 6 a.m. to 6 p.m.)

2 Some other schedule

### **Type of shift pattern worked**

Which of the following best describes the hours (you/name) USUALLY (work/works) at  
this [main job/job][in (your/his/her) business/in the family business]?

1 A regular evening shift (anytime between 2 p.m. to midnight)

2 A regular night shift (anytime around 9 p.m. to 8 a.m.)

3 A rotating shift — one that changes periodically from day to evenings or night

4 A split shift — one consisting of two distinct periods each day

5 An irregular schedule arranged by employer

6 Other, specify [If person says flextime, etc., probe to determine if shift actually falls in a  
day)

### **Reason this shift is worked**

What is the main reason why (you work/ name works) this type of shift?

1 Better child-care arrangements

2 Better pay

3 Better arrangements for care of other family members

4 Allows time for school

5 Easier commute, less traffic

6 Could not get any other job

7 Mandated by employer to meet transportation demand management or pollution  
abatement program

8 Nature of the job

9 Other (specify)

The typology of shift-work patterns used in the United Kingdom is different from that used in the United States. In particular, the United Kingdom utilizes categories which describe the type of shift system used, rather than the effect of working a particular type of shift on the individual's working time. For example, "three-shift working" is usually used to describe the staffing arrangements for a 24-hour continuously operated process. Workers on such a system may rotate shifts, so the distinction between this and the fourth category in the set of responses shown below for the British LFS is not clear.

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### **Type of shift pattern worked**

What type of shift pattern do you work?

- 1 *three-shift working*
- 2 *continental shifts*
- 3 *two-shift system with 'earlies' and 'lates'/double day shifts*
- 4 *sometimes night and sometimes day shifts*
- 5 *split shifts*
- 6 *morning shifts*
- 7 *evening or twilight shifts*
- 8 *night shifts*
- 9 *weekend shifts*

### **Homeworking**

The next issue relating to flexible working arrangements is homeworking. As discussed in above, homeworking is an arrangement which relates closely to flexible working times, because homeworkers generally have more scope to vary the hours in which they conduct their work than those workers who do not or cannot work from home. Homeworking tends to be associated with jobs at the bottom end and the top end of the occupational spectrum. Workers who assemble goods on a “piecework” basis may be required to work from home by employers who wish to avoid the costs of providing facilities for their employees. At the other end of the spectrum, many organizations now make use of technological improvements in communication to allow high-level “knowledge” workers to work from home, thereby reducing their commuting time and costs. The American CPS supplement considers this issue in some detail, asking workers if they have a “formal” arrangement with their employers to take work home. It is not clear what is meant by a “formal” agreement. Workers were also asked whether they ran a business from their home and were requested to give the main reason for working from home. Relevant questions from the American CPS supplement are shown below.

#### **Do you work at home**

As part of [THIS JOB/THE WORK IN THIS BUSINESS] (do/does) (you/name) do any of (your/his/her) work at home?

- 1 *Yes*
- 2 *No*

#### **Paid for the work done at home**

(Do/Does) (you/he/she) have a formal arrangement with (your/his/her) employer to be paid for the work that (you/he/she) (do/does) at home, or (were/was) (you/he/she) just taking work home from the job?

- 1 *Paid*
- 2 *Taking work home*

#### **Business run from home or other location**

(Do/Does) (you/ name) run (your/his/her) business from home or some other location?

- 1 *Home*
- 2 *some other location*
- 3 *both*

---

### **Family business run from home or other location**

Is the family business for which (you/ name) (work/works) run from (your/his/ her) home or some other location?

1 Home

2 some other location

3 both

### **Full or part time days worked at home**

The days (you/name) worked at home LAST WEEK, were they whole days, part days or both?

1 Whole days

2 Part days

3 both

### **Number of whole days worked at home**

How many whole days did (you/name) work at home?

1:7 Number of whole days

### **Number or part days worked at home**

How many part days did (you/name) work at home?

1:7 Number of part days

### **How many days worked at home and business**

On how many of these days did (you/ name) also travel to (your/his/her) place of business?

1:7 Number of days travelled

### **Regular hours worked last week at home**

LAST WEEK of the [fill entry from HRACT1] hours of work (you/name) did, approximately how many did (you/he/she) do at home [ON THIS JOB?/FOR THE BUSINESS?] Regular Hours? ('Regular' hours worked at home for main job last week)

0 No regular hours worked at home

1:99 Regular Hours

### **Extra hours worked at home last week**

LAST WEEK of the [fill entry from HRACT1] hours of work (you/name) did, approximately how many did (you/he/she) do at home [ON THIS JOB?/FOR THE BUSINESS?] Extra Hours? ('Extra' hours worked at home for main job last week)

0 No extra hours worked at home

1:99 Extra Hours

### **Main reason for working at home**

What is the main reason why (you/name) (work/works) at home?

1 less commuting

2 Reduce expenses for transportation, food, clothing, etc.

3 Co-ordinate work schedule with personal and family needs

4 More control over own life

5 Illness, disability, health reasons

6 Mandated by employer to reduce employer costs

7 Mandated by employer to meet local transportation demand management or pollution abatement program requirements

8 other (specify)

---

### **How many paid hours last week worked at home**

LAST WEEK, how many of the [fill entry from SMJ9] hours that (you/name) worked at home on this job were worked as paid hours at home?

0:80 Paid hours worked at home

### **How many unpaid hours last week worked at home**

LAST WEEK, in addition to the [fill entry from SMJ21] paid hours, did (you/he/she) work any additional UNPAID hours on this job at home?

1 Yes

2 No

Both the British and German surveys have questions on homeworking, albeit more limited than the CPS special module. One of the British questions seeks to identify the location of work and whether it is multi-locational. The German survey seeks to identify whether an individual would work at home. Thus, though the British and German questions are more limited than those in the CPS are, they do explore different areas relating to homeworking.

### **Do you work mainly at home**

(In your main job) do you work mainly...

1 in your own home

2 in the same grounds or buildings as your home

3 in different places using home as a base

4 or somewhere quite separate from home?

### **Do you ever work at home**

Do you ever do any paid or unpaid work at home for your (main) job?

1 yes

2 no

### **Last week, did you work at home**

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

1 in your 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

The CPS module investigates what technology homeworkers use to be able to carry out their work. This includes provision of modems, faxes, computers, etc. The British Labour Force Survey has a simple question about the use of computers for work, while the German SOEP does not exclude uses of computers for tasks other than work (except games).

---

### **Equipment used at home for work**

Which of the following list of equipment (do/does) (you/name) use at home to perform (your/his/her) work? (Read list. Check all that apply.)

- 1 Computer
- 2 Modem
- 3 Fax
- 4 Telephone
- 5 Connection to work site to access voice mail
- 6 Other

### **Modem used to connect to work site**

(Do you/Does name) use this modem to connect to (your/his/her) employers work site?

- 1 Yes
- 2 No

### **Telephone line furnished by employer**

Is this telephone line furnished by (your/name's) employer?

- 1 Yes
- 2 No

The British LFS asks one question about the nature of the equipment that facilitates homeworking arrangements.

### **Equipment used for home working**

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

- yes
- no

The relevant question asked in the German SOEP is:

### **Equipment used for homeworking**

Do you use a computer, either privately, on your job, in your training/education? [By computer include the personal computer (PC) or the main-frame, but not a purely game machine.]

- no, do not use a computer
- yes, do use a computer
- use a computer since 19\_\_

## **European Union developments in statistics on working time arrangements**

Through the mechanism of the European Labour Force Survey,<sup>18</sup> all countries of the European Union have, since 1992, provided some limited information to Eurostat on what are termed “atypical working arrangements”. These arose as part of the major review and revision of the procedures for the European Union LFS that were implemented in 1992. Four new data items were added to the common data specification at this time. These covered:

<sup>18</sup> The European Union Labour Force Survey is not a single survey, but a common specification of individual-level data collected by household surveys conducted via National Statistical Institutes of the European Union.



## **Shift work**

*Person usually does shift work*

*Person sometimes does shift work*

*Person never does shift work*

## **Evening work**

*Person usually does evening work*

*Person sometimes does evening work*

*Person never does evening work*

## **Night work**

*Person usually does night work*

*Person sometimes does night work*

*Person never does night work*

## **Saturday work**

*Person usually does Saturday work*

*Person sometimes does Saturday work*

*Person never does shift Saturday*

## **Sunday work**

*Person usually does Sunday work*

*Person sometimes does Sunday work*

*Person never does Sunday work*

Additionally, a question has been included since 1992 on whether or not a person works at home. This is coded as the above (usually, sometimes, never). Table 1 shows recent trends in the responses to these questions for Germany, Italy and the United Kingdom.

**Table 1. Trends in “atypical working” in Germany, Italy and the United Kingdom: 1992-1996 (percentage of all employed)**

	Germany		Italy		United Kingdom	
	Males	Females	Males	Females	Males	Females
<b>Usually works shifts at night</b>						
1992	9.2	4.5	5.2	2.6	6.5	4.8
1996	8.6	4.4	5.9	3.0	7.4	4.9
<b>Usually works in the evening</b>						
1992	16.7	12.3	11.8	8.7	15.4	14.2
1996	19.4	15.4	14.5	10.1	17.7	15.5
<b>Usually works on Sundays</b>						
1992	10.1	9.8	8.1	6.9	12.3	10.4
1996	11.3	11.3	8.4	7.5	13.2	11.6
<b>Usually works at home</b>						
1992	4.6	6.1	5.2	6.0	8.3	6.7
1996	4.5	5.7	4.3	5.2	1.4	4.0

Source: European Union Labour Force Surveys, 1992 and 1996

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While this type of information improves significantly upon the cross-national comparability of data on working time arrangements, it does not address many of the issues raised in this paper. Recognizing the growing need for information on the nature of working time arrangements and the lack of any robust, harmonized statistical sources on this topic across the European Union, the Statistical Office of the European Union (Eurostat) has been developing and coordinating plans to collect such information from all Member States via the European Community Labour Force Survey in the year 2001. This *ad hoc* module on length and patterns of working time will represent an extension of a small module that has been included in the ELFS since 1992.

Utilizing the legal mechanism of a *Regulation*, the Commission of the European Community has specified a draft of the information to be collected within an *ad hoc* module to be attached to the Labour Force Survey. This draft, reproduced at Appendix 1 together with the associated explanatory notes, requires National Statistical Offices/Institutes to collect additional information on the following topics:

- Use of “banked” time as a reason for not having worked in the reference week all though having a job;
- whether or not the reason for working part-time is due to need to care for others (e.g. part-time parental leave);
- the scope to determine one’s own work methods and schedules;
- whether or not an employed person works for a single firm or customer;
- whether or not the employment is tied directly to output;
- overtime hours worked and pay arrangements;
- shiftworking patterns
- variability in working times;
- type of annualized hours contract (if applicable);
- type of zero-hours or on-call contract (if applicable);
- reasons for working shifts (if applicable);
- reasons for working annualized hours or zero-hours/on-call contract (if applicable).

It is evident from this list that the 2001 *ad hoc* module will provide much new and detailed information for all countries of the European Union. Further, if it becomes apparent that the information gathered proves particularly useful in terms of understanding differences in the extent and nature of working time arrangements across the European Union, certain of the questions may be retained as a permanent feature of the Community Labour Force Survey.

National Statistical Offices/Institutes are currently in the process of assessing the Regulation to determine how best to make these requirements operational. Some revisions and/or adaptations may be made as this process continues. However, it is the intention that the resulting data should reflect the specification as closely as possible to ensure harmonization.

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## Potential improvements in national procedures

Changes in working time arrangements are taking place to differing degrees in the four countries we have investigated in this report. This is an important area for the development of internationally comparable statistical information for a number of reasons. We single out two as being of particular importance. First, knowledge of the changing distribution of working time is as important as knowledge of the changing distribution of incomes. No country nowadays would be content to measure the trends in average earnings alone, without some measure of the growth or decline in inequality. For similar reasons, we argue that knowledge of the growth or decline in the distribution of working time and how these changes manifest themselves among different groups of workers is important for the study of social exclusion and poverty. Secondly, the changes that are taking place have repercussions for the enforcement of labour standards, in that less scrupulous employers can find ways to vary work-time arrangements to their benefit whilst claiming that they can still adhere to certain minimum labour standards. Without a clear and informed view of the nature of changes in working time arrangements it will become increasingly difficult to monitor the scale of this potential problem.

Significant amounts of relevant data are already collected in some countries. From this review of the nature of statistical information on working time arrangements in the four countries studied, certain conclusions can be reached.

It is evident from the sources we have investigated that there is little uniformity of practice in the definition, classification and measurement of working time arrangements across the four countries we have studied. Each national statistical institute is, to varying degrees, taking steps to improve the information they collect, but the non-standard use of terminology seriously undermines any attempt to engage in comparative analyses of these trends. By far the most concerted attempt to address and remedy this deficiency is the module of questions currently under development by Eurostat and all European Union member countries, to introduce a set of questions relating to the nature of working time arrangements on the European Union Labour Force Survey. These questions help to clarify terms such as “shiftworking” and seek to establish the scope for variation in the hours worked by individuals. Additional important questions will help establish the reasons for these changes, specifically whether they are at the initiative of the employee or the employer.

Most importantly, it is apparent that information on working time arrangements is best obtained from sources equivalent to the Labour Force Surveys (Germany, Italy and the United Kingdom) or the Current Population Survey (United States). Other sources, for example the longitudinal data sources and income/expenditure surveys, are generally too small in scale to record the nature and the detail of these changes. Employer/establishment-based surveys are inappropriate sources given that different working time arrangements often apply to various groups of workers at a single establishment.

We have concluded that it is difficult — but by no means impossible — to obtain good comparable information on the contractual terms and conditions of employment which specify working time arrangements. There are a variety of reasons for this. Perhaps the most important reason for poor comparability in this area is the lack of any consistent conceptual framework within which contractual working time arrangements can be classified. This is not simply the same as saying that *definitions* of these contractual arrangements vary. The problem appears to be that the *formality* of these arrangements varies significantly from country to country, probably as a result of institutional differences and the legal framework governing employment relations in these countries.

We are convinced that it is feasible to promote, develop and, for a number of countries, collect reasonably well-harmonized statistical information in certain areas which

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can provide more insight into the changing nature of working arrangements. We refer to these as *time-of-day statistics*, *weekly/monthly work patterns* and *flexible contractual arrangements*. Each of these is outlined below.

### **Time-of-day statistics**

Time-of-day statistics refer to the usual pattern of working hours worked over a 24-hour period. There are, of course, a number of difficulties to be addressed in making this an operational concept. Some people work varying hours of the day, but in a fairly regular pattern over a week or month. Rotating shift work is a good example of such a working arrangement. Others may be “on-call” at different times of the day or night during a week or month, with no clear pattern to their varying work arrangements. Despite such problems, it appears both feasible and it would be instructive to enquire into the *start time* and *finish time* for work undertaken during the survey reference period. The intention here is to develop, for each survey respondent engaging in paid work, a 24-hour vector of values indicating whether or not the individual was working at that time. As is done in the CPS, this could be defined in terms of a “typical day” within the working week. Many issues remain to be resolved in developing such a vector, for example the treatment of persons who hold more than one job. Nonetheless, we are of the opinion that these problems can be surmounted via a well-specified project for statistical development. There is a clear parallel here with the type of information developed by time-budget studies. The intention would be to determine whether or not information which approximates that available from time-budget studies could be obtained from a few simple questions included in a large-scale and continuous household survey.

### **Weekly or monthly work patterns**

Time-of-day statistics can be complemented by information on weekly or monthly work patterns. This would introduce the concept of a reference month and request from survey respondents details of their typical work pattern over a week and a month. We take the view that this will become an increasingly important complement to information obtained from time-of-day working arrangements. As we have shown, one of the countries studied (United Kingdom) already collects weekly work pattern information (e.g. which days of the week were worked), but the introduction of arrangements such as the “nine-day fortnight” will make information from this shorter timeframe less easy to interpret.

### **Flexible working arrangements**

This is an area of acute interest in all the countries studied. Some countries (e.g. the United Kingdom) have adopted a fairly narrow focus on flexible working arrangements, obtaining information on a regular basis only from those who are employed under a specific contract stipulating the degree of flexibility in working hours. Other countries (e.g. the United States) enquire into the degree of flexibility an employee may exercise in terms of working hours. This is a broader concept, which will include many professional or “high-trust” workers who would not consider their job as being subject to a “flexitime” agreement. There is, therefore, a need to harmonize statistical practice in respect of the definition of “flexibility”. This represents a major task, as the countries of the European Union are now discovering as they move to implement the draft regulation covering statistics on working time arrangements. We feel that it would be appropriate to await the outcome of the implementation of the European Union LFS 2001 module on working time arrangements before developing firm proposals for further work in this area

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## Next steps

We propose two actions that could further progress the development of good comparable statistical information on working time arrangements. We are impressed with the use that has been made of information on start and finish times by researchers in the United States. We suggest that discussions be held with a number of National Statistical Offices to determine whether, in the light of the American experience, such questions could be placed on their Labour Force Surveys. Secondly, we propose that the ILO should become involved in the current discussions being held between Eurostat and National Statistical Institutes on the progress of plans to implement the 2001 module of questions on working time arrangements within their national Labour Force Survey.

## Appendix 1. European Union Labour Force Survey: Specification of the 2001 *ad hoc* module on length and patterns of working time

The following data are collected only for the main job.

Column	Code	Description	Filter, remarks
25	0 1 2 3 4 5 6 7 8	<i>Reasons for not having worked at all though having a job</i> Bad weather Slack work for technical or economic reasons Labour dispute Education or training Illness, injury or disability Maternity or parental leave Holidays <b>Compensation leave (within the framework of working time banking or an annualized hours contract)</b> Other reasons (for example., family responsibilities)	V24=2
44	1 2 3 4 5 8 6 7	<i>Full-time/Part-time distinction</i> Full-time work Part-time work because: Education or training Illness or disability Could not find full-time job Did not want full-time job (without specific reason) <b>Looking after children or incapacitated adults (for example, parental leave)</b> Other reasons No reason given	V24=1,2
209	1 0	<i>Determines own work methods and schedule</i> Determines own work methods and schedule Subordinate relationship	V26 ≠ 4,9, blank
210	1 0	<i>Work for single firm or customer</i> Works regularly for one firm or customer Works regularly for more than one firm or customer	V26 ≠ 4,9, blank
211	1 0	<i>Termination of contract</i> Producer unit ceases to exist when product or services provided Producer unit continues to exist	V26 ≠ 4,9, blank
212_213	—	<i>Overtime hours in reference week</i> Number of hours	V26=3
214	1 2 0	<i>Paid or unpaid overtime</i> Overtime hours are completely paid Overtime hours are partly paid Overtime hours are not paid	V212_213 ≠ 0
204	1 2 3	<i>Shift work</i> Usual shift work Sometimes shift work, else regular work No shift work	V26=3

Column	Code	Description	Filter, remarks
215	1 2 3 4 5 6	<i>Shift work patterns</i> Continuous shift work, usually four-shift system Semi-continuous shift work, usually three-shift system Two-shift system: double-day shift Sometimes night, sometimes day shift Fixed assignment to a given shift Other type of shift	V204=1
216	1 2 3 4 5 6	<i>Variable working times</i> Fixed start and end of a working day Annualized hours contract Working time banking Working times by mutual agreement Determines own work schedule (no formal boundaries) Other	V26=3
217	1 2 3 4	<i>Compensation of credit hours</i> Flexible start and end of a working day, outside block working hours Flexible start and end, only subject to $\Sigma h =$ contractual number of hours Flexible hours outside block working hours + days or weeks off Flexible hours only subject to $\Sigma h =$ contract + days or weeks off	V216=2
218	1 2 0	<i>Min-max contracts, on-call work or zero-hours contracts</i> A minimum number of hours is agreed by contract but the number of hours actually worked may exceed this minimum and they are not paid at overtime rate Reports to work <b>only</b> when called Other	V26=3
219	1 2 3 4 5	<i>Reason for shift work</i> On personal initiative/individual preference when person took this job On personal initiative: after a request to change the arrangements in her/his job Offered by the employer at the time of recruitment (no similar job available with ordinary working time arrangements, similar within this occupation or industry) On the employer's initiative, old schedule is replaced by current schedule No reason given	V204=1
220	1 2 3 4 5	<i>Reason to work this working time arrangement</i> On personal initiative/individual preference when person took this job On personal initiative: after a request to change Offered by employer at the time of recruitment On the employers' initiative: old schedule is replaced No reason given	V216, V218=1,2
Defaults	9 "blank"	Not applicable No answer	V209..V220

## Explanatory notes

Scope of the variables: these data are only collected for the main job, this limits the possibility of "portfolio" labour relationships, for example, the combination of wage labour and freelance work.

### **Column 209. Determines own work schedule and methods**

Code 1. The contract only specifies the product or services to be provided but the "producer" or "provider" determines the work schedule and methods. This is in contrast with standard wage

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employment where the contract or collective agreement specifies the working times and where the owner, manager or persons in the owners' employment can tell the employed person at any time what, when or how to do it (subordinate relationship).

### **Column 210. Work for single firm or customer**

Code 1. Work is performed on a regular basis for only one firm or customer. This is in contrast with the self-employed who operate on a market and usually have to obtain customers on their own to provide a product or service.

### **Column 211. Termination of the contract**

Code 1. The contract or agreement ends when the product or services, specified in that contract or agreement are provided. The continuity of the producer unit or service provider is not guaranteed.

### **Column 212\_213. Overtime hours in the reference week**

All overtime hours, both paid and unpaid, are included. The additional number of hours performed is overtime in two cases: (i) when it is understood by the employer and employee that a certain amount of work must be done in addition to the contractual number of hours, and (ii) when additional hours need to be done to meet the output target. Because overtime refers to additional hours, hours which are compensated at long-term are excluded.

### **Column 204. Shift work (core variable)**

Shift work is a regular work schedule during which an enterprise is operational or provides services beyond the normal working hours from 8 a.m. to 6 p.m. on weekdays (evening closing hours may be later in the case of a longer break at noon in some Member states). Shift work is a work organization under which different groups or crews of workers succeed each other at the same work site to perform the same operations. At the start of the shift work, work of the previous shift is taken over and, at the end of the shift, work is handed over to the next shift. Shift work usually involves work on unsocial hours in the early morning, at night or on the weekend, and the weekly rest days do not always coincide with the normal rest days.

### **Column 215. Shift work patterns**

Code 1. Continuous shift work: the enterprise is operational 24 hours a day and seven days a week, i.e. without daily break or break at weekends or on public holidays. Code 2. Semi-continuous shift work: the enterprise is operational 24 hours a day, i.e. without a daily break but with a break at the weekend. Code 3. Two-shift system, double-day shift: the enterprise is operational less than 24 hours a day with only a short daily break and a weekend break. Code 4. A day and a night shift: the enterprise is operational less than 24 hours a day, the day and night shift are well separated from each other. Code 5. Fixed assignment to a given shift: the employed person is not working according to a rotating or alternating pattern. When these persons are always working in the evening or at night, they should be coded accordingly in C205 and C206.

### **Column 216. Variable working times**

Code 2. Annualized hours contract: only the total annual number (or average weekly number) of hours is fixed; the (unequal) distribution of the (contractual) number of hours worked over the days and weeks is determined by the employer with daily and weekly hours being extended at certain periods dependent on production or service needs. This manpower adjustment avoids overtime (at premium rates) or short time. Code 3. Working time banking: working time banking usually involves a core time period during the day when employees must attend and a surrounding bend where they have some autonomy in how to organize their hours to meet their contractual requirements. Debit and credit hours can be accumulated and settled within a given period. Code 4. Working times are fixed by mutual (individual) agreement.



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### **Column 217. Compensation of credit hours**

Code 1. The employee can decide when to start working in the morning and finish in the evening (staggered working hours) outside a fixed block of working hours when presence is compulsory. Code 2. The number of daily working hours is variable only subject to the condition that total hours worked is equal to the contractual number of hours. The employee can decide when to start working in the morning and finish in the evening without an obligation to attend during a fixed block of working hours. Code 3. The employee can decide when to start working in the morning and finish in the evening (staggered working hours) outside a fixed block of working hours when presence is compulsory and (s)he can accumulate hours and use the credit for full days (or weeks) off. This case corresponds with case 1, but allowing the use of credit hours for days (or weeks) off. Code 4. The employee can decide when to start working in the morning and finish in the evening without an obligation to attend during a fixed block of working hours (only subject to the condition that their total hours worked is equal to the contractual number of hours) and may take full days (or weeks) off. This case corresponds with case 2, but allowing the use of credit hours for days (or weeks) off.

### **Column 218. On-call work, zero hours contract or min-max contracts**

Code 1. Min-max contracts: there is a guarantee for a minimum number of hours to be worked per week or per month, but the number of hours actually worked could be greater dependent on production or service needs. When the part-time employed person is regularly performing more hours than the agreed minimum, (s)he can claim that this number of hours is the newly guaranteed minimum number of hours. Code 2. On-call work (or “zero-hours” contract): on-call workers are called into work only when needed. They can be scheduled to work for several days or weeks in a row dependent upon the production or service needs, but they do not have a regular schedule because no continuous workload can be guaranteed. Dependent on the agreement with the employer, the on-call worker must perform the work when called or must find a substitute or, on the other hand, may decide not to respond. On-call work is different from stand-by hours when the person “on duty” is waiting for an emergency call. A stand-by status usually implies a normal labour contract, on-call work instead is an atypical labour contract.

### **Column 219. Reason for shift work**

The reasons for shift work refer to two dimensions. The first dimension indicates whether shift work corresponded with the individual preference (codes 1 or 2) or whether someone could not find a similar job without shift work (within this occupation or industry, the similarity depends only on occupation or industry; codes 3 or 4). The other dimension indicates whether the employed persons started shift work when (s)he took the job (codes 1 or 3) or later when the old labour conditions were replaced by the current shift work (codes 2 or 4).

### **Column 220. Reason to work this working time arrangement**

The reasons for the working time arrangements refer to two dimensions. The first dimension indicates whether the set of working time arrangements corresponded with the individual preference or whether someone could not find a similar job with other working time arrangements (within this occupation or industry, the similarity depends only on occupation or industry). The other dimension indicates whether the working time arrangements were determined when the employed person took the job or later when the old working time arrangements were replaced by the current arrangements.

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