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It's been a hard day's night: The concentration and intensification of work in late 20th century Britain

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**IT'S BEEN A HARD DAY'S NIGHT: THE CONCENTRATION AND
INTENSIFICATION OF WORK IN LATE 20TH CENTURY BRITAIN**

Francis Green

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Abstract

I investigate evidence concerning two indicators of the pressure of work, namely work hours and the intensity of effort during work hours ("work effort"). Interest in both is motivated by efficiency and welfare considerations, but analysis is typically attenuated by poor measurement. I first show how it is possible to derive measures of changing work effort from survey responses. Then, for Britain, I examine the trend in the distribution of work hours since 1977, and present evidence on changing work effort and correlates thereof. My main findings are:

- Average hours of work per worker levelled off at the start of the 1980s, following a long historic fall, but have not increased since. However, since 1981 the dispersion of hours has increased, and working hours have been concentrated into fewer households.
- Work effort was intensified, especially in manufacturing, during the 1980s.
- Across Britain from 1992 to 1997, there was an increase in "discretionary effort" and an even greater rise in "constrained effort", with the increases being somewhat faster for women than for men.
- Between 1986 and 1997 there have been substantial increases in the number of factors inducing hard work from employees. The most notable proximate source of increased pressure for hard work has come from colleagues.
- Both at the industry level, and at the establishment level, rises in effort have been associated with rises in productivity.
- Increases in effort are associated with self-reported increases in stress.

JEL Classification: J22

Keywords: Labour Supply

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IT'S BEEN A HARD DAY'S NIGHT: THE CONCENTRATION AND INTENSIFICATION OF WORK IN LATE 20TH CENTURY BRITAIN

1. Introduction

This paper concerns a phenomenon that is, at once, a puzzle, a social problem and an economic warning sign.

The puzzle, one for social science, is the apparent reversal of a long-standing relationship between increasing affluence and increasingly easier times at work. From at least the middle part of the nineteenth century when a typical worker would work around 60 hours a week all year round, economic growth was accompanied by diminishing work effort - or, to put it in traditional terms, a step by step, progressive relief from drudgery. Rising wages and wealth were in effect being expended, in part, on greater leisure. In 1961, British men spent an average of 54 hours each week working or commuting to work; by 1984, this had fallen to 43 hours, the saved hours being devoted to extra free time, extra sleep and more time on family responsibilities (Robinson, 1991). Similar trends are evident for women. Yet, in the last two decades, despite the continuation of growth in living standards, commentators have increasingly noted and occasionally deplored a sense of increasing work pressure in Britain.

The exact nature of this increasing work pressure appears to vary from one account to another. A culture of long hours at work came to be dubbed the new "British disease", elevating the problem to a status accorded usually to only the most treasured of British scapegoats.¹ Yet the metaphor of illness has also been appropriated by commentators from the United States, lamenting the epidemic of "hurry sickness", a virus engineered in California,

¹ See, e.g., IRS *Employment Trends*, November 1995, no. 596.

and fearing that “time is running out and its driving us crazy”.² Long hours for men, in particular, came to be seen as a constraint on the transformation of the household division of labour, held out as part of the feminist project.³ Long hours, reductions of lunch breaks and other features have been touted as inimical to health. Long hours for junior doctors, in particular, have rarely been out of the news for long, given perceptions of attendant health risks to patients and recruitment problems in Britain’s National Health Service.⁴ For Gallie *et al.* (1998) the issue is more one of hard work and tension in the workplace, of the pressure of tight deadlines and increased task flexibility. In their in-depth survey-based study of the transformation of both the subjective and the objective experiences of labour in Britain up until 1992, they find that this transformation includes an experience of rising work pressure even with the same hours of work. This increasing pressure went hand in hand with perceived increases in skills. For others with a campaigning perspective, increasing work pressure embraces both hard work and longer and more unsociable hours, and is deemed to be self-evidently associated with increasing job insecurity and health risks (London Hazards Centre, 1994).

However, across this largely critical literature the cited evidence to support the general proposition, that late 20th century Britain as a whole is an era of increasing work pressure, is decidedly limited. Indeed, looked at just in terms of average work hours, there is little doubt

² Interview with Robert Levine on BBC2 “How To Beat The Clock”, 9/1/99. See also Levine (1997). The programme also noted the seeming paradox that the production of countless time-saving devices coincided with less, not more, time to spare. An economic perspective would suggest that time scarcity would call forth time-savers, but commentator Jonathan Rowe asserted that “economists do not understand time”.

³ Typically, the “New Man” was thought to be unable to materialise in a long hours culture (e.g. Guardian headlines “Work ethic stunts New Man”, 17/6/95, and “Myth of ‘new man’ hides blight on families”, 9/7/96). Pressure groups such as the Fawcett Society advocated family-friendly policies to reduce male working hours.

⁴ e.g. Guardian, 18/4/98: 10.

that on average people work far *less* hours during each week and throughout the year than they did even in the immediate post-war decades. In recent years average work hours have changed very little, a statistic which fails to bear out the feeling that work pressure is mounting.⁵ All that could be said of average work hours is that, after 1980, average hours did not continue their long-term historic fall, as happened in many other (but not all) industrialised countries. This disjuncture between widespread perceptions and the most obvious nationally representative statistic warrants investigation: either perceptions of increasing work hours are inaccurate, or the perceptions relate to something other than the average of work hours. With respect to work intensity, although there are some striking case study or sectoral studies which have occasionally found that work intensity has been increasing (e.g. Burchell *et al.*, 1999; Edwards and Whitston, 1991; Edwards *et al.*, 1998), hitherto there has been no systematic statistical analysis of trends in work intensity through the 1980s and 1990s. Even for short periods, only Gallie *et al.* (1998) can claim to provide evidence on the basis of a nationally representative sample. So the first question to be addressed in this paper is: what statistical support is there for the notion of increasing work pressure in late 20th century Britain?

The problem is one of welfare, in particular the potential disutility of work. It is epitomised in the growth of the “stress” industry, that army of occupational psychologists whose job is to find ways of relieving the adverse effects of overwork on mental and physical health. Workplace stress emerged as a political and social issue primarily in the 1990s. With headlines such as “Work can damage your health”⁶, reports of “stress at work ‘rising sharply’”⁷ and discoveries of the “stress factor as British disease”⁸ the ballooning media

⁵ Including paid and unpaid overtime, the average fell from 37.7 hours in 1983 to 36.8 hours in 1998; see Appendix.

⁶ Times, 16/1/90:11.

⁷ Financial Times, 8/12/93:10.

⁸ Independent, 14/11/94:28.

coverage appeared to have discovered a new and growing problem.⁹ Yet stress is only the extreme manifestation of rising pressures at work. Experiences of less extreme pressures may also be undesirable. It should also be conceded that the rise of the stress industry does not itself prove or even closely track the intensification of work. The perception of stress, and its portrayal as an individual neurosis, is partly a reflection of the individualisation of work relations in Britain, which has proceeded at its own separate pace. Nevertheless, the potential welfare consequence of rising work pressures is a problem that deserves attention from economists as well as others.

The warning sign concerns whether a national economy that has relied too heavily for two decades on extending work hours and intensifying jobs can expect to sustain that mode of economic growth indefinitely. Given that utilisation of the human day is subject to diminishing returns, a process of growth that relies on work intensification is sure to be self-limiting. Several sober judgements on the 1980s' boost to manufacturing productivity have recognised the roles played by work intensification and reductions in "overmanning", and tended to be pessimistic about the extent to which a restructuring of industry on the basis of high investment and innovation had been accomplished (e.g. Evans *et al.*, 1992; Nolan, 1989; O'Mahoney, 1994). However, there is a lack of quantitative information about the role played by work intensification in the 1980s, and as yet virtually no assessment of its role in the 1990s.

Accordingly, this paper has three main objectives. Foremost is the aim of clarifying the statistical evidence about changing work pressure over the last two decades. To anticipate, I find first that a key indicator of mounting work pressure concerns not the average hours of

⁹ For example, the Financial Times ran articles covering workplace stress just 4 times in 1990, and just 5 in 1991, but in the following five years, the topic featured 13, 10, 13, 21 and 17 times respectively.

workers but their distribution among individuals and concentration in households. Amongst individuals, work hours have become more dispersed, so that there are more workers (of both sexes) working especially long hours and more working especially short hours. The former are the group that epitomises the problem of rising work pressure as measured by hours. Moreover, with increasing participation of married women work hours have increasingly been concentrated in fewer households. Within working households, average hours per household member have increased by some three hours since the start of the 1980s. Second, I find, by piecing together several separate social surveys, that there is systematic statistical evidence of a continuous intensification of labour in the 1980s and 1990s. I both synthesise existing evidence and present some new evidence on this issue.

A subsidiary objective is to begin to address the posited link between hard work and stress. I find some support for the expectation that increased stress is strongly associated with work intensification. Finally, a third objective is to consider whether productivity growth is linked with work intensification. I find substantial empirical support for the proposition that productivity growth in Britain has been correlated with work intensification, consistent with, though not proving, the reservations of the more pessimistic commentators on the British economy. The point of these last two objectives is, however, primarily to provide some further corroboration of the work intensification data. The intention is that, given many readers' unfamiliarity with the methods I use here to capture work effort, some comfort will be afforded by the content validity demonstrated by the correlations shown in the data.

Given the potential problems with measuring work intensity, the next two sections are devoted to methodological issues: clarifying terms and reviewing operational indicators. Section 4 assesses evidence on trends in work hours. Section 5 is perhaps the key section: it synthesises existing evidence on labour intensification, and presents new and better evidence

derived from several surveys. Section 6 looks at links with stress and productivity, while Section 7 summarises, concludes and points to avenues of ongoing research.

2. Clarifying Terms: Extensive and Intensive Effort

“Work effort” is an ambiguous term, so before proceeding to examine trends it is essential to clarify both the meaning and the methods through which it may be measured. First, one can distinguish “extensive effort”, meaning the time spent at work, from “intensive effort”, meaning the intensity of work during that time at work. Unfortunately “work effort” is sometimes used to mean either of these. In this paper I use the term “extensive work effort” interchangeably with work hours, and take their measurement to be unproblematic. However, the bulk of the paper is focused on the harder-to-measure concept of “intensive work effort”, which I shall use interchangeably with “work effort” for short, or with “work intensity”. Since work intensity is sometimes conflated with performance, or with efficiency, or even skill, I shall make the differences explicit, as follows.¹⁰

Let there be n workers in an organisation, whose rate of output is:

$$Q = f(q_1, q_2, \dots, q_n, \gamma) \quad (1)$$

where q_i is the “performance” of individual i , and γ is an index of organisational efficiency.

“Performance” is constituted by the extent to which an individual performs contractual tasks (and is synonymous with “individual productivity”). Normally one would expect an increase

¹⁰ Guest’s excellent discussion (1990) of these differences, drawing on the psychological and sociological literatures, can be cited in support of the framework I deploy; however, I differ semantically from Guest, who curiously takes work intensity not to be synonymous with work effort, but unfortunately never states precisely what he does mean by it.

in individuals' performances to raise organisational output, but the link depends on managerial policies that affect γ .

Each individual's performance depends on both skill and effort:

$$q_i = g(s_i, e_i), \quad g_s > 0, \quad g_e > 0 \quad (2)$$

where s is the individual's skill level, and e is effort. Underlying this relationship is a potential trade-off between skill and effort. One thinks of the person who wins a game with "effortless superiority", that is, high s and low e , or of the opposite extreme epitomised in the fable of the tortoise and the hare. More generally, it is well-known that motivation and enthusiasm are sought after characteristics of employees, sometimes as much as their technical skills.

Yet, though meaningful, relationship (2) is not normally quantifiable. Most obviously, what are the units of effort? They depend on the specific tasks, but measuring even physical effort (separately from outcomes) cannot be done except in restricted circumstances; mental effort is that much harder. In part, effort is inversely linked to the "porosity" of the working day, meaning those gaps between tasks during which the body or mind rests. Yet there is also a gradation of effort exercised during task performance, which is hard to measure except in quite confined circumstances.

The problem of measurement of effort can be resolved, however, by calibration against a social norm. One possible conceptualisation of such a norm might be termed "permanent effort". Assume a given skill level, s^* . Then permanent effort can be defined as that amount of effort that can be devoted at work without reductions in physical or mental health. Inevitably there is considerable flexibility in this definition and perceptions of declining health due to work are partly subjective. Like other social norms, the determination of permanent effort is affected by social conflict - in this instance, at the workplace. The horizon is important, as well as the length of the work week, in affecting the perception of permanent

effort. For example, school teachers work intensively and for long hours in term time, but especially long holidays may provide periodic recovery: so the horizon might need to be a year long. Foreign exchange dealers, by contrast, may work extremely intensively for a decade or more, suffer “burn out” then retire to alternative activities: for them the horizon is closer to half a working life time. The concept of permanent effort bears a superficial resemblance to the concept of permanent consumption in its relationship to wealth. But I prefer to see permanent effort as an aspect of Marx’s concept of the value of labour power in its relationship to the reproduction of labour-power. This link is better because it is important to see effort norms as socially-determined, just as the value of labour-power is determined by social forces including the historical balance of conflict between labour and capital (Green, 1991).

However the effort norm is determined, the key presumption I make is that effort norms do exist, and they impinge on people’s perceptions of their own effort.¹¹ Once effort is measured relative to a social norm, the problem of units is circumvented and the route to adequate measurement is open.

Let $\bar{q}_i = g(s_i^*, \bar{e}_i) = \alpha_i$ be the performance of an individual with given skill, s_i^* , working at the permanent effort rate \bar{e}_i . Let $\beta_i = \frac{e_i}{\bar{e}_i}$ be effort in relation to the effort norm.

Then, after linearising, we have:

$$q_i \equiv \bar{q}_i \cdot \frac{q_i}{\bar{q}_i} = \bar{q}_i \cdot \frac{e_i}{\bar{e}_i} = \alpha_i \beta_i \quad (3)$$

The measure of effort, relative to the permanent effort norm, is now unit free, while α_i comes in whatever units individuals’ output performance is measured (if feasible).

¹¹ Guest (1990) cites evidence in support.

This simple framework (1) to (3) allows one to encompass a number of managerial and organisational developments in recent years. For example, multi-skilling may be a process both of raising skill levels (hence the α_i) and, in reducing the work time while waiting for other skilled workers to mend broken-down machines, a process of work intensification (hence the β_i). Just-In-Time or Total Quality Management methods, frequently hailed as progenitors of large increases in efficiency (i.e. raising γ) are also thought to operate by raising β_i by reducing the porosity of the working day (Edwards *et al.*, 1998). Teamworking, one of the most widespread management innovations of the last decade, can be seen as raising all three parameters, in so far as they inculcate new skills, induce employees to work harder and also engender greater organisational efficiency. The multiplicity of effects underlies the critique of such innovations (e.g. Taplin, 1995), since the extent to which greater skill, greater efficiency or work intensification is the route to greater productivity can be contested. Finally, the framework again demonstrates the important point, emphasised in Guest's many examples from the industrial relations literature, that alterations in individual performance (the q_i) and, *a fortiori*, in output (Q) will only be closely correlated with alterations in effort if the other factors such as skill and work organisation are held constant: a conclusion of considerable relevance for the measurement of trends in work intensity.

To sum up this clarifying section, while the definition and measurement of work hours is normally unproblematic, work intensity needs careful attention to allow conceptual distinction from organisational efficiency, individual performance and skill. The usefulness of (3), for the purposes of this paper, lies in the assumption that although direct measures of e_i are impossible in most practical circumstances, measures of β_i are by contrast quite feasible. In non-experimental settings, when judgements about effort are made, by case study researchers or by survey respondents, these are relative judgements of effort in relation to

some norm. Moreover, although I have motivated the framework by reference to a “permanent” effort norm, the key aspect is the socially-determined effort norm. As long as those reporting on effort have a (within bounds) consistent perception of the effort norm, their reports may be regarded as valid effort data for purposes of analysis. Evaluation of the content validity of measures so produced can, then, be regarded as evaluations of the assumption of stable effort norms.

3. Methodologies for Measuring Work Intensity

I turn next to review possible indicators of intensive work effort that other researchers have used. As stated above, although direct data on physical or mental effort can only be obtained in the rarest of experimental conditions, measures of effort in relation to a norm, as suggested above, prove to be more promising. Yet given flexibility in interpretations of social norms, it will be important wherever possible to verify findings from independent studies using a range of methods. One can identify four methods that might be used for measuring effort, all of which have been used in previous studies. For the most part, these methods shed light on instances of effort *change* (i.e. work getting harder or easier), rather than on the effort *level*.

(i) *Organisational or Sectoral Case Studies*

In this method the researchers either use ethnographic methods to study change within an organisation or, more superficially, scrutinise written agreements for evidence of explicit or implicit effort change (e.g. Elger, 1990). Overviews of such case studies and agreements can then be undertaken to form a judgement about the overall direction of effort change in substantial sectors of the economy. The method is limited to sectors of the economy covered

by written agreements; and case studies face the usual question of how far they can be generalised, to set against their contribution to our understanding of processes of change.

(ii) *Quantifiable Proxies*

A second method is to measure variables that are assumed to be strongly related to work effort. Of course, the validity of the proxy rests on that of the assumed relationship. One set of proxies might refer to presumed determinants of work effort – for example, removal of restrictive practices has been interpreted as indicating increased effort (Andrews and Simmons, 1995). Other measurable proxies pertain to outcomes, of which a prime example is the rate of industrial injury. There is a substantial tradition that assumes that a high pace of work will cause greater injuries (Nichols, 1991); hence, trends in injury rates show trends in work effort. The limitation is that other factors also affect reported injury rates, notably the extent of regulation, and the advance of technology and of health and safety awareness and skills. An outcome proxy that has been used to test the efficiency wage theory of effort determination is a firm's rate of dismissals (e.g. Cappelli and Chauvin, 1991; Campbell, 1993). Unfortunately, this proxy suffers both from a relatively loose link with work effort (dismissal follows only from a lack of work effort and varies according to monitoring and discipline procedures), and from measurement error (dismissals may be mis-recorded as redundancies).

Another outcome proxy of work intensity has been derived from a combination of investment and labour productivity growth. It is assumed that productivity growth is the outcome of either investment or greater work effort. Hence evidence of productivity growth without investment is taken as evidence of labour intensification. In this vein Nichols (1991) reports a crude measure of effort change, namely productivity growth minus the recent investment rate. Despite the intuition behind such a measure, there are serious limitations.

Such an equation does not of course hold in accounting terms.¹² A preferable approach along the same lines is to take the inverse of the production function, that is, the employment function, and infer changes in effort from changes in employment for given output (Green and Weisskopf, 1990). However, as the framework (1) to (3) shows, productivity growth can occur through increases in the efficiency with which labour is used without rises in work effort - whether through improved management or through skill accretion.¹³ Thus, outcome proxies focusing on output and employment must also take skill and organisation as either constant or independent of variations in work effort.

(iii) *The Work Study Method*

Based on the results of work study in a panel of factories, an index of the “Percentage Utilisation of Labour” (PUL) was developed by Bennett and Smith-Gavine (1987). This index measured changes in productivity attributable to changes in work speed relative to the standard times dictated in a putatively scientific manner by work study experts. Interest in this index was sparked by its rise in the early 1980s - it seemed to provide objective evidence of rising work intensity at a time when such a finding was widely expected.

It is ironic that evidence derived from “scientific management” methods, so long derided in social scientific discourse as ideological and as a means to intensify work, should have been adduced as evidence of increased work intensity under early Thatcherism. However, the validity of the PUL has been subject to a convincing conceptual and practical critique. Guest (1990) documents the scope for error deriving from the circumstances and

¹² If effective labour and capital stock are both growing, Nichols’ measure would understate the intensification of labour.

¹³ Conversely, investment brings highly variable impacts on productivity depending on how efficient it is.

pressures facing work study experts, from the informal resistance of workers, and from the impact of changing work organisation on the make-up and underlying methods of the PUL. Its empirical reliability has also been questioned by Nichols (1991), who finds only a very weak connection at the aggregate level with changes in injury rates, and no connection at all at the industrial level.

(iv) *Subjective Effort Measures*

Evidence from psychologists supports the method of asking workers careful direct questions about how hard they work. Answers have been shown to correlate well with objective effort measures of both physical and mental effort in experimental conditions (for reviews, see Guest, 1990; Green and McIntosh, 1998). In asking people to assess their work intensity, one is essentially collecting data on their β_i . The method of comparing β_i across individuals or time, and inferring effort variation, is valid to the extent that effort norms are consistent: that is, that they do not systematically vary across groups (e.g. gender, see Bielby and Bielby, 1988) or time.

To estimate whether effort has changed, there are two options. One can ask workers to make their own retrospective comparisons of their effort past and present. With this option, responses may be subject to recall error, and past effort levels might be underestimated if their psychological impact has been diminished with the passage of time. Hence a preferred option is for identical questions on effort levels to be asked in representative surveys at different time points. Providing sample sizes are large enough, this procedure is the best direct method for establishing changes over time in work effort. With any subjective method, however, an issue of some concern is that the distinction between working harder and working longer hours may not always be clearly made, and hence any interpretation of varying effort levels has to allow for that.

4. The Concentration of Extensive Work Effort in the Late 20th Century: Trends in Hours of Work

In the light of the preceding discussion on measurement issues I am now in a position to examine the nature of increasing work pressure in Britain as expressed in changing extensive and intensive work effort.

With the former, the issue is not so much measurement as the choice of an appropriate statistic. If a sense of changing work pressure is to be reflected in quantifiable data, the obvious starting point is average hours of work. In 1851, fitters and turners in London normally worked 58½ hours per week, almost every week of the year. By 1968 this had been reduced by a third to 40 hours (see Figure 1). The same story is found for bricklayers, bricklayers' labourers, compositors, journeymen furniture manufacturers and all groups for whom consistent data is available: their weekly hours fell from around 60 in the mid 19th century to around 40 in 1968. Moreover, even manual workers by 1968 could expect two or three weeks paid holiday a year. The historic decline in weekly hours is manifested in sporadic discrete jumps punctuated by long periods of stability. The general downward trend persisted for some time after official figures become available for wider groups of workers. Specifically, the hours decline continued off and on through into the 1970s, with a substantive drop in 1974.¹⁴

Beyond then, the story is taken up by the New Earnings Survey (from 1974) and by the Labour Force Survey (from 1977). Both series suggest a possible turning point in 1981, a year of deep recession. Nevertheless the break in the downward trend has not been followed by an upward trend. As Figure 2 and Table A1 show, average hours worked per week dropped to 36 in 1981 and hovered around this length right through till the late 1990s. If unpaid overtime is

¹⁴ *Department of Employment Gazette*, December 1979, Table 121.

included, there is again no substantive trend since 1983. A similar picture of stability in average hours is found for males and females separately, and for the alternative measure of “usual” hours per week (Table A5). In an international context, the United Kingdom’s average hours usually worked stands marginally below the European Union average.¹⁵ With these summary statistics, it is hard to identify any sense of increasing extensive work effort in Britain. Indeed, one could cite the three decades from 1920 as one of static weekly work hours, which was nonetheless just a plateau amidst a long-term decline. The recent two decades could come to be seen in the same light. And during this period, the length of paid vacations continued to increase until the late 1980s, even if since 1992 they too have been unchanged (Tables A8 and A9).

However, these commonly quoted averages obscure some more telling trends that underlie the sense of a long hours culture in Britain. From the late 1970s until the start of the 1990s the dispersion of hours increased. As Figure 3 shows, the coefficient of variation of actual hours rose substantially during this period. Another expression of this trend is that increasing proportions of the workforce are working long hours. Whereas just 17 percent of the employed workforce worked at least 48 hours a week in 1983, by 1998 (on the eve of the introduction of the European Directive on Working Time) the proportion had risen to 20 percent. Putting the story of Figures 1 and 2 together, while many more workers were by the end of the period doing long hours, this was balanced on average by the introduction of other workers doing relatively few hours.¹⁶ Thus, the proportions working less than 20 hours a week rose from 10 percent in 1983 to over 14 percent in 1998. Four out of five of those doing long hours are male, and this is consistent with the observation that male workers top the European

¹⁵ *Labour Market Trends*, June 1996.

¹⁶ This statement is also valid for men and women each considered separately.

league of average work hours while British women work less hours than all other European Union countries bar the Netherlands.¹⁷ Nevertheless both sexes have been increasing their long hours working. In the case of males, the proportions doing over 48 hours rose from 25 percent to 30 percent, while the female proportion rose from 5 percent to 8 percent. Thus the first main conclusion is that increased extensive work effort is indeed a reality for some sections of the workforce, but not for the workforce as a whole.

Yet, looking at individuals as isolated workers obscures another trend with implications for work pressure, namely the concentration of work in households. Gregg and Wadsworth (1996) and Gregg *et al.* (1999) have already drawn attention to the increasing proportions of households in Britain and elsewhere where no one is in work. Figure 4 and Tables A3 and A4 (columns 1), show this trend: in 1977, 12 percent of households of people of working age had no one working; by 1998 the proportion had risen to 21 percent. The other side of this same coin is that jobs have been concentrated in fewer households. Most of this concentration process coincided with the early 1980s' recession, but the phenomenon of workless households has persisted ever since.

Overall participation in work, however, has broadly held up because work has been increasing among working households. Both in total and averaged over all household members of working age, weekly hours of work have risen remarkably. The upper line in Figure 4 shows the average contribution per household member rising from a low of 28 hours per person in 1981 to 31 hours in 1998. Is this effect perhaps due to changing household composition? The answer is no. If we focus, for example, just on two-adult households where at least one member is working, the total weekly devotion to work rose over the same period

¹⁷ *Social Trends* 28, Table 4.17.

by six hours, from 54 to 60 hours per week.¹⁸ In fact, the prime reason for households' increased hours contribution is the greater proportion within working households of adults who are working (88 percent in 1998 compared to 79 percent in 1983).¹⁹

There are other important changes in work hours that impinge on people's welfare. In particular, the changing patterns of work associated with the flexible labour market have meant increases in shift working and weekend working, annualised work hours contracts, more Bank Holiday working, fewer lunch breaks²⁰ and so on. These changes, which have ambivalent effects on welfare, have been documented elsewhere (e.g. Hewitt, 1993).²¹

Nevertheless, as a measure of the increasing pressure of working time on people's lives, the total quantity of time at work would seem to be the prime index. From the above analysis, I draw the main conclusion of this section namely that the sense of increasing pressure of work on limited hours in the day can be supported, not by changes in the average hours statistic, but changes in the distribution of work hours. On one hand, greater proportions of men and women have been working especially long hours, while at the same time increasing proportions have been working especially few hours. On the other hand, not only has work been excluded from increasing proportions of the nation's households, those households where someone is working find themselves devoting significantly more hours both per person

¹⁸ All the data in this section refer to actual hours but the pattern of change for usual hours tells the same story: see Appendix tables.

¹⁹ Parallel to the concentration of jobs into fewer working households, there has been a declining participation of older men and increased participation of prime age women. Disney (1999) ascribes the former largely to demand side forces while the latter is the continuation of a long-term trend.

²⁰ Market research on behalf of a food service company has found that whereas in 1990, only 7 percent of workers never took a lunch break, and simply worked through lunchtime, by 1997 this figure had risen to 29 percent, though it dropped back to 22 percent in 1998 (Eurest, 1998). One might question the reliability of this data source, but the extent of the change is sufficient to suggest that a trend towards greater pressure to miss or reduce lunch is real.

²¹ Also, see Appendix.

and in total. This concentration of extensive work effort comprises one objective indication of increasing work pressure in Britain. On its own, however, it may not capture all or even most of the sense of increasing work pressure in Britain. Just as important may be the intensification of work during work hours, and it is to this phenomenon that I now turn.

5. The Intensification of Labour

(i) Prior to the 1980s.

Unlike long-term trends in working hours, I can find no appealing way of gauging trends in work intensity before the 1980s. The only outcome proxy variable with a sufficient run of data concerns industrial injuries. The fatality rate in manufacturing industry fell progressively from 1960 through 1980, before rising in the first half of the 1980s (Nichols, 1997). While this series is taken as evidence of labour intensification in the 1980s, Nichols does not take the pre-1980 fall as evidence of falling work intensity; in fact the latter is not discussed. He is right not to draw such a conclusion, but his silence on this issue, together with evidence of subsequent further falls in fatalities, seems inconsistent with taking the early 1980s rise in fatalities as acceptable evidence of labour intensification. Nichols himself has drawn our attention to the limitations of this approach (Nichols, 1991). Industrial injuries and fatalities are probably too loosely linked to work intensity to be of use in proxying the latter.

(ii) The 1980s and 1990s

(a) Existing Evidence

The issue of the extent of labour intensification has been especially important in the evaluation and characterisation of productivity changes in the Thatcher period (Nolan, 1989; Guest, 1990; Edwards and Whitson, 1991). Certain studies indicate that indeed work effort

did rise. Thus Elger (1990), utilising method (i), characterised the 1980s as a period of work intensification in the manufacturing sector on the basis of a review of case studies and flexibility deals. Tomaney (1990) arrives at a similar conclusion, maintaining that the main emphasis of moves towards a more flexible workplace in the UK was to “raise the rate of capital utilisation through a reintegration of work tasks”. Through a selective review of sectoral and case studies, he suggests that the intensification of effort is the main route to increased productivity, rather than increased skill.

Andrews and Simmons (1995), defining effort somewhat curiously as “anything that is bargained over in real-world negotiations, apart from employment and wages, and is not paid for directly” (p.315), arrive at the stylised fact that effort rose in the early 1980s. They review survey evidence (from successive Workplace Industrial Relations Surveys and the CBI Pay Databank Survey) indicating shifts in power towards management, with something like one in four establishments reporting removal of restrictive practices, and about the same ratio experiencing “substantial changes in work organisation or work practices”. They supplement these input-based indicators with the output-based evidence that employment declined fastest over 1980 to 1984 in establishments that were both unionised and experiencing organisational change.

Nichols (1991) also deduces a rise in work effort in the early 1980s from the combination of high productivity growth and very low investment in manufacturing industry. These conclusions are consistent with the findings of Batstone and Gourlay (1986) who, using the subjective recall method, find increases in effort between 1979 and 1984 reported by shop stewards in a range of manufacturing plants. Edwards and Whitston (1991) report increased effort levels between 1987 and 1989 among respondents in four organisations. In later findings, as part of an investigation into Total Quality Management, Edwards *et al.* (1998) found evidence of substantial increases in effort in the 1990s. Of their sample of workers in

six large organisations in 1995, three out of four employees reported working “a lot harder” or “a little harder” than three years earlier. In a similar vein, Burchell *et al.* (1999) report that among 20 organisations investigated in 1997/1998, more than 3 out of 5 employees reported increased effort and increased speed of work over the previous five years, with just 1 in 20 registering decreases. A survey by the Institute of Management reported that as many as 4 out of 5 managers said their workloads had greatly increased.²² A more representative finding, using the subjective recall method, is reported by Gallie *et al.* (1998). In a 1992 survey of workers in Britain, they report that workers had experienced substantial skill increases over the previous five years, and that this upskilling was associated with high levels of “work pressure” (*ibid.* p.40). Moreover, over 53 percent recorded an increase in levels of stress at work compared to just 12 percent reporting a decrease (*ibid.* p.220).

Taken together, these existing studies support the view that a substantial degree of work intensification took place in the 1980s and that it may have extended to the 1990s. While no one piece of evidence is convincing on its own, the consistency of findings using different methods is impressive. Nevertheless, none of the above studies has been able to deploy the best subjective method, that is, comparing responses to separate surveys. The bulk of the evidence for the 1980s refers only to the manufacturing sector or to sub-sectors of manufacturing, and little is known so far as to whether the process of intensification persisted on a broad basis since the last representative survey in 1992. Moreover, while Gallie *et al.* show the deleterious effects of work intensification on worker welfare, none of these studies has established the importance of work intensification as a source of productivity growth. Yet

²² “Working harder, working longer: managers’ attitudes to work revisited”, *IRS Employment Review*, 600, January 1996.

it is frequently asserted that intensification, rather than increased efficiency, must account for the 1980s productivity growth in the manufacturing sector.

(b) New Evidence

These lacunae can be addressed through the consideration of some new evidence on effort changes based on the subjective response method. In all I use six surveys to build up a picture of change in the last two decades. In this paper, the emphasis is on describing the trends, while explanation is to be tackled in forthcoming research.

First, an independent data source that has not hitherto been called on, in respect of the work intensification debate for the early 1980s, is the Social Change and Economic Life Initiative (SCELI). SCELI included a survey of some 4,000 workers in Britain. While not designed to be representative of the whole of Britain, the socio-economic profile of the sample closely matches that of the British workforce (Green *et al.*, 2000). Thus, we are able to examine effort change in the early 1980s across the whole economy rather than specifically within the manufacturing sector, as with the earlier evidence. Respondents were asked to consider the job they were in five years previously (if they had had one), and to say whether there had been a “significant increase”, a “significant decrease” or “little or no change” between then and their current job in respect of, among other things: “how fast you work” and “the effort you have to put into your job”. Their responses are given in columns 2 and 3 of Table 1.

Table 1: Effort Change, 1981-1986

Change over previous five years	Work Speed (%)	Required Effort (%)
Increase	38.0	55.9
Little or no change	54.3	36.1
Decrease	7.7	8.1

Source: SCELI

The evidence is unequivocal: on both counts, there was a substantial balance of workers experiencing an intensification of their labour. Unsurprisingly, the two variables are highly correlated (the Spearman rank correlation coefficient is 0.44). We return to these data below when we address the connection between effort change and productivity.

The story for the latter half of the 1980s is picked up in part by a question asked in the 1990 Workplace Industrial Relations Survey (WIRS90). As part of this survey of over 2,000 establishments with at least 25 workers, representatives of manual and non-manual workers were each interviewed on a range of industrial relations issues. Unfortunately, not all establishments had worker representatives that were interviewed. The majority of establishments that did, recognised trade unions. On the issue of changing work effort, respondents were each asked how “the intensity or the pace of work for most manual (non-manual) workers” compared with “three years ago”. The responses summarised in Table 2 are again unequivocal: they show a strong balance of establishments where labour intensification took place during this period.

Table 2: Effort Change, 1987-1990

Workers' effort compared to three years previously:	Manual Workers [†] (% of establishments)	Non-Manual Workers [‡] (% of establishments)
“A Lot Higher”	30	46
“A Little Higher”	26	22
“About The Same”	36	27
“A Little Lower”	6	4
“A lot Lower”	1	1

Percentages are weighted to take account of over-sampling of smaller establishments; respondents were the respective representatives of manual and non-manual workers in the plants.

[†] base = 715 establishments; [‡] base = 675 establishments.

Source: Workplace Industrial Relations Survey, 1990.

Further confirmation of labour intensification in the late 1980s derives from an individual-based survey conducted in 1992, entitled Employment in Britain. This survey has the advantage of being representative of those in employment across the whole of the British economy. As Gallie *et al.* (1998) relate, they found that a large balance of worker experienced increases in skills in five years up to 1992, and that this increase was associated with high levels of work effort measured by a summary index of a range of indicators. One indicator from this range referred to the perceived change in effort, and here I show findings in relation to that variable alone, and set them alongside the previous findings of Gallie *et al.* regarding changing workplace stress, as derived from the same data. Respondents were asked, as in the SCCLI survey in 1986, to compare their current situation with their job five years previously. Respondents were asked about “the effort you have to put into your job” and about “the stress involved in the job”. The responses are consistent with the evidence from the 1990 WIRS (that covers an overlapping period), with 3 out of 5 reporting increased work effort and more than half registering increased stress.

Table 3: Effort Changes, 1987-1992

Change over previous five years*	Required Effort (%)	Stress (%)
Increased	61.5	53.4
Little or no change	31.1	34.2
Decreased	7.5	12.1

* If not in a job five years ago, since job nearest to that time.

Source: Employment in Britain.

A telling feature of all the above findings is that they show that the rise in work effort was found across the whole economy. Nevertheless, they are all based on backward-looking survey questions, which is not ideal. Moreover, for the most part the evidence pertains to the

1980s, and only touches on the 1990s. It is possible that, following the change of regime with the downfall of Margaret Thatcher, and perhaps with a saturation in work effort levels, the intensification of labour has slowed down in more recent years.

To extend the analysis, therefore, I first refer to a fourth piece of new evidence that I am currently investigating in a parallel study conducted with Steven McIntosh. Evidence from surveys carried out under the auspices of the European Foundation for the Improvement of Living and Working conditions indicates that between 1991 and 1996 the pace of work speeded up in most European Community nations. Respondents were asked to state how often they were subject to high speed work, and how often they had to work to tight deadlines. Identical questions were asked in identical formats in representative surveys carried out in 1991 and again in 1996. Our analysis of changes across a range countries shows that work intensity rose faster in Britain than in all other countries.

In this paper I use the same preferred method - the comparison of representative surveys - to examine effort change between 1992 and 1997 using data from the Employment in Britain Survey (EB) of 1992 (Gallie *et al.*, 1998) and from the Skills Survey (SS) of 1997 (Ashton *et al.*, 1999). In addition to affording larger sample sizes than in the European Foundation study, these surveys also contain rich sets of additional data covering both individual and job characteristics, which potentially can be used to investigate levels and changes in effort. Both samples were designed to be representative of Britain, and are applied to respondents aged 20 to 60 who are in employment. Two questions capture the subjective estimates of work effort, as follows: “How much effort do you put into your job beyond what is required?” and “‘My job requires that I work very hard.’ Do you strongly agree, agree, disagree, or strongly

disagree with this statement?”.²³ The first question attempts to pick up individuals’ discretionary effort, while the second question attempts to capture the extent to which they are constrained by the job to work hard. Table 4 presents the range of responses in 1992 and 1997. For short I refer to the response scales as “Discretionary Effort” and “Constrained Effort” respectively.

Table 4: Work Effort in Britain, 1992 and 1997

	(a) Discretionary Effort[†]					
	All		Males		Females	
	1992	1997	1992	1997	1992	1997
A Lot	68.4	71.8	67.1	68.5	69.9	75.9
Some	21.0	22.5	23.1	22.5	21.9	19.3
Little	5.2	4.9	5.8	6.6	4.7	2.8
None	3.3	2.1	3.5	2.2	3.0	1.9
	(b) Constrained Effort[†]					
	All		Males		Females	
	1992	1997	1992	1997	1992	1997
Strongly agree	31.5	39.8	30.5	38.2	33.0	42.1
Agree	57.1	49.3	58.2	49.1	56.2	49.9
Disagree	9.9	9.9	10.5	11.8	9.4	7.7
Strongly disagree	1.1	0.7	0.8	1.0	1.4	0.5

[†] For question asked, see text.

As can be seen, work intensity has continued to increase during the 1990s. This conclusion is consistent with that of Edwards *et al.* (1998), but is based on large representative samples, and is not dependent on respondents’ recall judgements. The chief source of labour intensification is the constraints of the job, rather than personal choice. In the case of discretionary effort, the main rise has been for females, with no significant change for

²³ These questions had been used in the 1970s in the U.S. Quality of Employment Surveys (Bielby and Bielby, 1988).

males. In the case of constrained effort, both males and females were much more likely in 1997 than in 1992 to agree strongly that their job “requires them to work hard”.

The foregoing analysis has built up a picture of continually rising work effort over the last two decades. The strongest pieces of evidence relating to the 1990s derive from the best method of comparing representative surveys. While the 1980s evidence is mainly based on the subjective recall method, there is one further striking piece of evidence that is not thus dependent on recall. This evidence relates not directly to effort, but to the proximate sources of pressure to work hard. It thus falls into the category of a quantifiable proxy. I first show that the proxies are indeed positively correlated with effort. That done, I can use measures of the pressure to work hard to tell us even more about effort trends.

Respondents to SCELI (1986), to Employment in Britain (1992) and to the Skills Survey (1997) were asked: “Which, if any, of the things on this card are important in determining how hard you work in your job?” The card included seven possible sources of effort pressure as follows: a machine or assembly line, clients or customers, supervisor or boss, fellow workers or colleagues, one’s own discretion, pay incentives, reports and appraisals. Respondents could tick as many effort pressure sources as they wished, including none. For Employment in Britain, however, an additional factor (“the targets you are set”) was included, top of the list. Thus, comparison of Employment in Britain with the other two surveys is not strictly valid, but are included in the table since the changes are sufficiently large to dwarf any likely errors induced by the slightly different response card. To capture the totality of factors impinging on employees, I summed up the number of factors ticked by each respondent to create an Effort Pressure Index (EPI), which accordingly ranged from 0 (no factors) to 7 (maximum pressure). Table 5 shows how the Effort Pressure Index compares for individuals in the 1992 and the 1997 surveys, according to reported levels of constrained and discretionary effort. For both variables, there is a positive relationship between the EPI and

the reported effort levels. Thus, in 1997, individuals whose constrained effort was highest reported on average 1.3 more factors (2.85 compared with 1.56) impinging on hard work than those whose effort was lowest. The average EPI index also increased from 1992 to 1997 (despite the fact that one more factor was included in the card for 1992), again consistent with the finding from Table 4 that effort rose between 1992 and 1997.

Table 5: Effort Pressure and Hard Work

Average Effort Pressure Index (EPI)[‡]

	(a) Discretionary Effort[†]			(b) Constrained Effort[†]	
	1992	1997		1992	1997
A Lot	2.47	2.81	Strongly agree	2.52	2.85
Some	2.43	2.67	Agree	2.42	2.75
Little	2.03	2.47	Disagree	2.15	2.38
None	1.93	1.80	Strongly disagree	1.79	1.56

[†] For question asked, see text.

[‡] See text for definition.

I now use the Effort Pressure Index to make direct comparisons between 1986 and 1997, thus capturing more than a decade of workplace change.²⁴ Table 6 tells a strong story. For all possible sources of effort pressure, there is an increase between 1986 and 1997. Most remarkable is the increased impact of colleagues: whereas in 1986 only 29 percent of employees cited colleagues as affecting how hard they work, by 1992 this proportion rose to 36 percent, and by 1997 to 57 percent. It seems that peer pressure has come into its own as a source of labour intensification in this age of teamworking. At the same time, most other sources of pressure are expanding rapidly too. I shall discuss the implications of these various

²⁴ Also, note that the Effort Pressure Index in 1986 is positively linked with the measure of effort change described in Table 1. For those with perceived increasing work speed, the EPI was 2.10, compared with 1.81 for those with constant or decreasing work speed; for those with perceived increasing required effort, the EPI was 2.04, compared with 1.75 for those with constant or decreasing required effort.

routes to getting people to work harder in forthcoming research. Meanwhile, the point is to note that, since the EPI has been shown to be correlated positively with work effort, the broader perception of sources of work pressure provides further confirmation of the continued intensification of labour throughout this period. The conclusion is summed up in the bottom three lines of the table: the EPI increased from 1.92 to 2.74 over the period, a substantial and significant change, as can be seen by the averages given in Table 5. Moreover, the index rose more for women than for men, a difference consistent with the finding in Table 4 that work effort rose fastest for women.

Table 6: Trends in Effort Pressures on Employees

	1986	1992	1997
<i>Percent subject to work pressure from:</i>	%	%	%
Machine or assembly line	7.1	5.3	10.2
Clients or customers	37.2	50.4	53.9
Supervisor or boss	26.7	37.7	41.0
Fellow workers or colleagues	28.7	36.1	57.0
Own discretion	61.5	65.1	67.6
Pay incentives	15.3	19.4	29.8
Reports and appraisals	15.3	27.4	23.5
Effort Pressure Index[†]			
<i>All employees</i>	1.92	2.41	2.74
<i>Males</i>	2.00	2.40	2.69
<i>Females</i>	1.82	2.43	2.80

[†] Number of influences; see text.

(c) Is the evidence of rising work intensity robust? Controlling for work hours

Altogether, the synthesised existing and the new evidence of rising work intensity have been derived from a variety of data sets, using a range of methods. Nevertheless, a potential objection to the conclusions arises from a conceivable confusion in respondents' minds between intensive and extensive work effort. As noted above, part of the sense of increasing work pressure is objectively validated by evidence of increasing hours of work for some

people, though not on average. Is it possible that the evidence of rising work intensity is picking up longer hours of work?

To examine this, I used the three variables measuring work intensity, and compared years for workers in given hours bands. The results, given in Table 7, show that with all three measures intensity rose between 1992 and 1997 within each hours band, with one exception of no rise in discretionary effort for the 36-40 hours band. Table 8 shows the Effort Pressure Index rising for both full-time and part-time workers. We can thus be fairly sure that the work intensity changes are not just picking up hours changes.

Table 7: Work Effort and Effort Pressure by Work Hours, 1992 and 1997

Hours of work per week	Constrained Effort [†]		Discretionary Effort [‡]		Effort Pressure Index [#]	
	1992	1997	1992	1997	1992	1997
Up to 20	18.5	32.9	58.8	71.3	2.06	2.59
21-30	29.9	40.1	69.3	70.6	2.33	2.60
31-35	31.8	33.4	63.6	71.3	2.61	2.70
36-40	30.9	35.0	66.2	64.0	2.49	2.84
41-45	29.2	43.1	70.4	74.3	2.62	2.96
46-50	32.7	47.6	68.8	76.8	2.40	2.67
More than 50	43.5	54.9	79.8	87.7	2.52	2.63
ALL	31.5	39.8	68.4	71.8	2.41	2.74

[†] Percent in the highest required effort category.

[‡] Percent in the highest discretionary effort category.

[#] Effort Pressure Index = number of influences; see text.

Table 8: Work Pressure and Work Hours 1986 and 1997

Effort Pressure Index [†]		
	1986	1997
Full-time	2.00	2.77
Part-time	1.63	2.62
ALL	1.92	2.74

[†] Number of influences; see text.

6. Can the New Evidence on the Intensification of Labour be Corroborated?

The last section showed that the evidence of rising work intensity is robust, to the extent that it is not sensitive to controlling for a possible misinterpretation by respondents of the effort questions. I now want to ask whether this new evidence can be corroborated by reference to other proxies related to work intensity. The two candidates for this exercise are workplace stress and labour productivity.

(i) *Stress*

There is a considerable ongoing psychological literature about the sources of organisational stress (e.g. Cooper, 1998), and there is evidence that work overload is a major determinant of mental ill-health (e.g. McCormick and Cooper, 1988). Although there is a strong role posited for work intensity in affecting stress, the literature also emphasises that the impact of “stressors” may be mediated by organisational and personal attributes. Although the current data do not permit a test of a sophisticated model of workplace stress, the prediction of a strong correlation with stress affords the opportunity to corroborate the effort change data obtained from the Employment in Britain survey. Respondents recorded a balance of increasing stress, as well as a balance of increasing effort (Table 3). Are these responses correlated?

Tables 9a and 9b show that the two sets of responses are indeed strongly linked. For those recording an increase in stress, Table 9a indicates that some 82 percent recorded also an increase in effort, compared with 62 percent overall and only 37 percent for those reporting a decrease in stress. However, other factors may also be linked to both stress and effort. Table 9b controls for several factors that could be associated with workplace stressors: sex, age, size of establishment, whether in the public or private sector, human capital, and whether a manager or supervisor. The table summarises an ordinal probit estimate of the impact of effort

change on stress change: the effect is positive and highly significant. I take this to be corroborative evidence as to the validity of the effort change data reported in Table 3.

Despite the strength of this corroboration, it could be argued that since the stress and effort questions were asked close together, a spurious correlation could emerge (though note that other questions asked close to the effort question do not show a similar strong correlation). Therefore, further corroboration will be helpful. I seek this in evidence on productivity change.

Table 9a: Stress Change, 1987-1992

Change in effort by change in stress

		Change over previous five years in perceived stress:		
		% of all with:		
		<i>increase in stress</i>	<i>little or no change in stress</i>	<i>decrease in stress</i>
Change over previous five years	<i>Increased</i>	82.0	38.1	36.8
	<i>Little or no change</i>	15.1	57.1	28.4
in required effort:	<i>Decreased</i>	2.9	4.8	34.8

Source: Employment in Britain.

Table 9b: Stress Change, 1987-1992

Determinants of change in stress: summarised ordinal probit estimates

Covariates	Coefficient (s.e.)
<i>Effort Change:</i>	
Effort decrease (omitted category)	-
Little or no change in effort	0.70 (0.09)
Effort increase	1.47 (0.09)
<i>CONTROLS</i>	YES
Pseudo R ²	0.155
n	3139

Control variables are: gender, age, establishment size, public sector, five highest qualification dummy variables, manager or supervisor dummy.
Standard errors in parentheses.

(ii) *Labour Productivity*

As discussed above, work intensification has been argued to be a major proximate source of productivity growth in 1980s manufacturing. The basis of this argument has been that, since the rate of investment in manufacturing was far below the rate for the economy as a whole, and since productivity grew especially fast in manufacturing, this must have been due to work intensification. Strictly speaking, this argument is at best incomplete. Since productivity growth depends on skills growth and on efficiency changes (that is, changes in s or γ) as well as changes in effort, one can only deduce work intensification on the assumption that neither skills nor efficiency grew faster in manufacturing than elsewhere. Yet it is quite possible that part of the productivity growth was due to genuine efficiency improvements. That said, it is a reasonable prediction that effort change would be expected to be especially high in manufacturing in the early 1980s when that sector was under so much pressure. Table 10 confirms this expectation: the proportions experiencing rising effort according to both SCCLI variables was 36 percent, while in the whole economy it was 32 percent, this difference being statistically significant. By contrast, in the 1992 to 1997 period manufacturing did not have an above-average productivity growth (nor such a disastrously low investment rate); and in this period, according to the Skills Survey/Employment in Britain comparisons, work intensification was if anything slightly lower in manufacturing than elsewhere in the economy.

Table 10: Productivity Growth and Work Intensification, by Selected Industry

	1981 to 1986		1992 to 1997	
	Productivity Growth	Effort Increase*	Productivity Growth	Effort Increase [#]
Manufacturing	30.0	36.2	8.6	7.6
Education		21.4		14.0
Whole Economy	14.8	32.0	11.3	8.3

* Percent reporting both an increase in required effort and an increase in work speed.

[#] Increase in percent reporting strong agreement with “My job requires that I work very hard”.

A second point of interest shown in Table 10 is the performance of the education sector. In the 1981 to 1986 period the perceived rise in work intensity, though positive, was among the lowest across all industries. In the 1992 to 1997 comparison, however, the intensification of labour was greatest in the educational sector. Although it is notoriously difficult to measure productivity in a non-marketed service industry, these differences in the ranking of education accord well with what is known about the industry. In the early 1980s the pupil-teacher ratio in schools was falling, while further and higher education were expanding only slowly. By contrast, in the 1990s the pupil-teacher ratio in state schools was on the rise again (from 15.8 in 1992 to 16.7 in 1997), while the number of full-time students in further and higher education was on a steep upward curve (with on average more than 100,000 extra students enrolling every year). Schools were also being subjected to successive major curriculum and management innovations, each of which entailed substantial transitional effort costs, while universities were increasingly subject to external pressures on the research front.

Thus, this broad ranking of productivity change and effort change provides some, albeit not strong, corroboration of the picture conveyed by the effort change tables derived from SCCLI, Employment in Britain and the Skills Survey.

A stronger test of corroboration is possible for the WIRS90 effort data underpinning Table 2. In the case of these data one can test for correlation at the establishment level with estimates of productivity change. As with the effort change data, information on productivity change was provided in categorical format. Quite independently, the manager (sometimes instead the financial manager), the non-manual workers' representative and the manual workers' representative were asked: "In your opinion how does the level of labour productivity here compare with what it was three years ago?". They could answer: "a lot higher", "a little higher", "about the same", "a little lower", "a lot lower" or "don't know".

After excluding the latter category, Table 11 gives the Spearman rank correlations between responses of the various parties on effort and productivity change over three years.

Table 11: Productivity Growth and Work Intensification

Establishment-level corroboration matrix

Spearman correlation coefficient

	Effort Change (Manual)	Effort Change (Non-Manual)	Productivity Change (Manual)	Productivity Change (Non-Manual)	Productivity Change (Manager)	Productivity change (Financial Manager)
Effort Change (Manual)		0.26 (0.00)	0.39 (0.00)	0.12 (0.05)	0.25 (0.00)	0.12 (0.07)
Effort Change (Non-Manual)			0.22 (0.00)	0.44 (0.00)	0.05 (0.56)	0.11 (0.13)
Productivity Change (Manual)				0.25 (0.00)	0.18 (0.01)	0.20 (0.00)
Productivity Change (Non-Manual)					0.07 (0.42)	0.12 (0.10)
Productivity Change (Manager)						

p-values in parentheses.

One can note, first of all, that the manual and non-manual representatives' opinions on effort change are positively and significantly correlated. On the assumption that the pace of work in an organisation affects both types of workers in similar ways, this correlation in itself gives some confidence that the responses are at least conveying a consistent story. Second, note that for each of manual and non-manual workers separately, the correlation between their

estimates of effort change and productivity change is high, positive and significant.²⁵ Third, more remarkably still, the manual workers estimates of effort (or, respectively, productivity) change are positively and significantly correlated with the non-manual workers' estimate of productivity (effort) change. Fourth, perhaps the most telling, the manual and non-manual workers' estimates of effort change are positively correlated with the managers and with financial manager's estimates of productivity change.²⁶

Now, although I make no postulates about causation here, these positive correlations, especially those between independently given estimates each given in confidence, are considerably reassuring that the measures of changing work intensity are indeed carrying useful information.

7. Conclusions

Work effort is a central variable in economics, and the maintenance and control of work effort, including the management of the labour process, are integral to the functioning of economies. And yet, its measurement poses severe difficulties. This juxtaposition of importance with difficulty of quantification remains a persistent dilemma for economists: the topic ought not to be ignored, but economists prefer not to deal with anything other than "hard" data.

This paper has addressed this dilemma by attempting to derive sensible quantitative indicators of extensive and intensive work effort, in the context of late 20th century Britain.

²⁵ It is possible that this correlation arises from some respondents interpreting the two questions in the same way: i.e. inferring a productivity increase from perceived work intensification.

²⁶ However, only for manuals is the correlation statistically significant.

This context is prompted both by the increasing sense of rising pressure of work on working people's lives in recent decades, and by the attendant issue of growing work-related stress. There have also been concerns that productivity growth in Britain may be being primarily driven by labour intensification rather than by beneficial structural change in industry together with raised skill and efficiency. To investigate this phenomenon of changing work pressure, it has been necessary to go in some depth into the methodological and measurement issues surrounding effort.

My main findings are:

- Average hours of work levelled off at the start of the 1980s, following a long historic fall, but have not increased since. However, some groups of workers have been working longer hours, as the dispersion of hours has increased. Working hours have also been concentrated into fewer working households, within which the average contribution of work per person of working age has risen since 1981 by some three hours per week. This represents a non-negligible increase in the pressure of work on these households' available time.
- Those industrial relations writers who claimed, largely on the basis of reviews of workplace agreements, that work was intensified, especially in manufacturing, in the 1980s, were right: their conclusions are confirmed by my re-examination and synthesis of contemporary social surveys (SCEDI, WIRS90 and, later, Employment in Britain).
- Equally, the evidence from case studies of work intensification in the 1990s is supported by new evidence I have presented using the best available method for measuring effort trends, namely the comparison of questions in successive surveys. In particular, across Britain from 1992 to 1997, there was an increase in what I have called "discretionary effort" and an even greater rise in "constrained effort", with the increases being somewhat faster for women than for men.

- Just as striking, both between 1986 and 1992 and again between 1992 and 1997, there have been substantial increases in the number of factors inducing hard work from employees. The most notable source of increased pressure for hard work has come from colleagues: it seems that this is as much the age of peer pressure as of the hard-driving supervisor.
- There is some evidence that the rise in effort is at least associated with, if not the cause of, increased stress.
- Both at the industry level, and at the establishment level, rises in effort have been associated with rises in productivity.

These last two findings could be viewed in either of two ways. They could be taken as corroboration that the methods of measuring effort are valid. Alternatively, assuming the effort data is valid, the last two findings themselves constitute evidence for the impact of labour intensification. There is support for the hypothesis that stress is caused by increased work effort. Given the subjective measure of stress used here, this must be taken only as weak evidence but it is consistent with other evidence based on more sophisticated psychological instruments for the measurement of stress and mental ill-health. There is also support for the view that some of the productivity rises in Britain are attributable to work intensification.

To many economic and social commentators, these findings will not be surprising. Nevertheless, given the importance and simultaneously the difficulty of gauging these trends, this statistical picture represents a necessary first step towards understanding these changes in working life in Britain.

Most explanations for labour intensification that have been given fit into either of the two categories of supply factors or demand factors. In the former category comes changes in the nature of work such as to make work less of a drudge. If work is, nowadays, more

intrinsically satisfying than in earlier eras, then employees are prepared to work harder. However, the category of demand-driven effort intensification is the more widely offered explanation. Primarily, it is held that increased competitiveness in a more globally integrated economy induces firms to employ more “flexible” workers, and to provide less secure jobs, in order to keep costs down and to retain or increase market share (e.g. Burchell *et al.*, 1999). It may also be held that if the intersection of the two sides of the market induces greater inequality this may also spur increased effort, as employees strive to climb up the skills ladder. Finally, the role of the state as facilitator of greater flexibility is seen by commentators on the 1980s as most important. In forthcoming research, I utilise the trend data presented here to begin to examine the empirical validity of such explanations of labour intensification.

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APPENDIX

TRENDS IN WORK HOURS

Table A1: Individuals' Actual Hours at Work Per Week**Base: All Employed Persons, Excluding Unpaid Overtime**

	Average per employed person	Coefficient of Variation	90 th percentile	% working at least 48 hours
1977	39.2	0.359	53	18.4
1979	38.7	0.359	53	17.7
1981	36.0	0.394	50	12.7
1983	36.8	0.380	50	14.1
1984	36.6	0.396	50	15.0
1985	36.0	0.392	50	14.8
1986	35.9	0.394	50	15.0
1987	35.9	0.402	51	15.7
1988	36.4	0.396	52	16.6
1989	36.2	0.403	52	16.7
1990	36.0	0.402	52	16.2
1991	36.3	0.419	52	15.8
1992	35.6	0.419	51	15.1
1993	35.7	0.418	51	15.4
1994	35.8	0.419	52	16.1
1995	36.0	0.418	52.5	16.5
1996	35.8	0.417	52	16.2
1997	35.5	0.420	52	16.2
1998	35.5	0.416	52	16.0

Comprises actual paid hours in main job (including paid overtime, excluding mealbreaks), and actual hours in any second job; excludes unpaid overtime in main job.

Source: Labour Force Survey; from 1992, Quarterly Labour Force Survey, Spring Quarter.

Table A2: Actual Household Work Hours Per Week**Base: All Households With Someone Employed, Excluding Unpaid Overtime**

	Percentage of households with someone working	Average hours per person in working household	Coefficient of Variation	90 th percentile (hours per person)	Percentage working at least 48 hours per person
1977	87.8	31.6	0.380	44.5	6.8
1979	86.8	31.2	0.386	44	6.5
1981	83.1	28.5	0.430	41	4.9
1983	80.5	28.9	0.420	42	5.1
1984	79.5	29.1	0.432	43	5.7
1985	79.8	29.1	0.411	42.67	5.1
1986	79.6	29.3	0.415	43	5.5
1987	79.2	29.5	0.419	43.5	6.1
1988	80.4	30.5	0.406	45	6.8
1989	81.7	30.6	0.405	45	6.8
1990	81.8	30.5	0.404	44.5	6.8
1991	81.1	30.8	0.419	45	7.3
1992	78.6	30.2	0.429	45	7.0
1993	77.6	30.5	0.429	45	7.4
1994	77.3	30.8	0.426	45	7.9
1995	77.7	31.2	0.417	45.5	7.9
1996	77.7	31.2	0.419	45.8	8.1
1997	78.6	31.2	0.420	46	8.2
1998	78.9	31.3	0.415	46	8.3

Comprises actual paid hours in main job (including paid overtime, excluding mealbreaks), and actual hours in any second job; excludes unpaid overtime in main job.

Source: Labour Force Survey; from 1992, Quarterly Labour Force Survey, Spring Quarter.

Table A3: Individuals' Actual Hours at Work Per Week**Base: All Employed Persons, Including Unpaid Overtime**

	Average per employed person	Coefficient of Variation	90 th percentile	% working at least 48 hours
1983	37.7	0.387	52	16.8
1984	37.4	0.399	53	17.4
1985	36.9	0.395	53	17.6
1986	36.9	0.396	53	18.1
1987	37.0	0.404	54	18.8
1988	37.5	0.401	55	20.2
1989	37.4	0.406	55	20.3
1990	37.2	0.406	55	20.0
1991	37.6	0.423	55	19.8
1992	36.8	0.422	54.5	18.6
1993	37.0	0.421	55	19.4
1994	37.2	0.420	55	20.1
1995	37.3	0.420	55	20.8
1996	37.1	0.420	55	20.3
1997	36.9	0.422	55	20.2
1998	36.8	0.419	55	20.1

Comprises actual paid hours in main job (including paid and unpaid overtime, excluding mealbreaks), and actual hours in any second job.

Source: Labour Force Survey; from 1992, Quarterly Labour Force Survey, Spring Quarter.

This table only starts from 1983 since, before then, the questionnaire did not ask about unpaid overtime usually or actually worked.

Table A4: Actual Household Work Hours Per Week**Base: All Households With Someone Employed, Including Unpaid Overtime**

	Percentage of households with someone working	Average hours per person in working household	Coefficient of Variation	90 th percentile (hours per person)	Percentage working at least 48 hours
1983	80.6	29.7	0.423	44	6.3
1984	79.5	29.8	0.433	44.5	6.8
1985	79.9	29.9	0.413	44	6.4
1986	79.6	30.2	0.416	45	7.0
1987	79.2	30.4	0.421	45	7.7
1988	80.4	31.5	0.409	46.5	8.7
1989	81.8	31.7	0.407	46.5	8.9
1990	81.8	31.6	0.408	46.7	8.9
1991	81.1	31.9	0.424	47.5	9.7
1992	78.7	31.3	0.433	47	9.1
1993	77.6	31.6	0.434	47.7	9.9
1994	77.3	32.0	0.428	48	10.3
1995	77.7	32.4	0.419	48	10.5
1996	77.7	32.5	0.420	48.3	10.7
1997	78.6	32.4	0.423	48.3	10.8
1998	79.0	32.5	0.418	48.5	10.9

Comprises actual paid hours in main job (including paid and unpaid overtime, excluding mealbreaks), and actual hours in any second job.

Source: Labour Force Survey; from 1992, Quarterly Labour Force Survey, Spring Quarter.

This table starts from 1983 only, since before then the questionnaire did not ask about unpaid overtime usually or actually worked.

Table A5: Individuals' Usual Hours At Work Per Week**Base: All Employed Persons**

	Average per employed person	Coefficient of Variation	90 th percentile	% working at least 48 Hours
1983	39.5	0.36	54	19.2
1984	39.4	0.36	54	19.7
1985	38.9	0.36	54	19.9
1986	39.0	0.37	54	20.8
1987	39.1	0.37	55	21.8
1988	39.4	0.37	55	23.0
1989	39.3	0.37	55	23.1
1990	39.3	0.37	55	23.0
1991	39.3	0.39	55	22.2
1992	38.9	0.39	55	21.2
1993	38.8	0.39	55	21.5
1994	38.9	0.39	55	22.1
1995	39.0	0.39	55	22.8
1996	38.7	0.39	55	22.7
1997	38.8	0.39	55	22.9
1998	38.6	0.39	55	22.6

Includes usual hours in main job (including paid and unpaid overtime, excluding mealbreaks), and actual hours in any second job.

Source: Labour Force Survey; from 1992, Quarterly Labour Force Survey, Spring Quarter.

This table starts from 1983 only, since before then the questionnaire did not ask about unpaid overtime usually or actually worked.

Table A6: Usual Household Work Hours Per Week**Base: All Households With Someone Employed**

	Percentage of households with someone working	Average hours per person in working household	Coefficient of Variation	90 th percentile (hours per person)	Percentage working at least 48 hours per person
1983	82.8	31.1	0.39	45	6.7
1984	82.1	31.5	0.39	45	7.0
1985	82.1	31.5	0.38	45	6.9
1986	81.8	31.8	0.38	45.67	7.6
1987	81.4	32.2	0.39	46.5	8.4
1988	82.4	33.1	0.37	47	9.4
1989	83.7	33.4	0.37	47.5	9.7
1990	83.9	33.5	0.37	47.5	9.8
1991	83.2	33.4	0.38	48	10.2
1992	81.0	33.1	0.39	47.5	9.8
1993	79.8	33.2	0.40	48	10.4
1994	79.4	33.5	0.39	48.5	10.8
1995	79.5	33.8	0.39	48.6	11.1
1996	79.5	33.8	0.39	48.75	11.2
1997	80.4	34.0	0.39	49	11.5
1998	80.9	34.0	0.38	49	11.6

Includes usual hours in main job (including paid and unpaid overtime, excluding mealbreaks), and actual hours in any second job.

Source: Labour Force Survey; from 1992, Quarterly Labour Force Survey, Spring Quarter.

This table starts from 1983 only, since before then the questionnaire did not ask about unpaid overtime usually or actually worked.

Table A7: Usual Household Work Hours Per Week**Base: Two-Person Households With Someone Employed**

	Total household work hours	Coefficient of Variation	90 th percentile	% working at least 96 hours
1983	60.4	0.37	87	5.4
1984	61.3	0.38	88	5.9
1985	61.7	0.36	89	5.8
1986	62.5	0.37	90	6.5
1987	63.1	0.37	91	7.0
1988	65.0	0.36	93	8.0
1989	65.2	0.35	93	7.8
1990	65.9	0.36	94	8.6
1991	65.9	0.37	94	9.1
1992	65.9	0.37	94	8.8
1993	66.2	0.37	95	9.3
1994	66.7	0.37	95	9.4
1995	66.7	0.36	95	9.1
1996	66.7	0.36	95	9.0
1997	66.9	0.36	95	9.4
1998	66.9	0.36	95	9.3

Includes usual hours in main job (including paid and unpaid overtime, excluding mealbreaks), and actual hours in any second job.

Source: Labour Force Survey; from 1992, Quarterly Labour Force Survey, Spring Quarter.

This table starts from 1983 only, since before then the questionnaire did not ask about unpaid overtime usually or actually worked.

Table A8: Distribution of Paid Holiday Entitlements, GB 1974, 1981, and 1987**Base: Full-Time Adult Employees: Percent**

Weeks	1974		1981		1987	
	Males	Females	Males	Females	Males	Females
Less than 3	3.9	7.1	2.5	2.8	4.0	4.8
At least 3 but less than 4	58.9	61.3	9.3	12.1	4.9	5.0
At least 4 but less than 5	29.1	21.1	60.5	58.9	42.3	49.2
At least 5 but less than 6	3.0	2.7	20.8	16.4	38.9	30.6
6 or more	4.2	7.6	7.0	9.8	10.1	10.7

Source: New Earnings Survey.**Table A9: Paid Holiday Entitlements, GB 1993-1997****Base: Employees**

	Average paid holiday entitlement (days)	Average paid holiday entitlement (days) Full-Time	Percent of all employees with no paid holiday rights
1993	21.0	23.5	10.6
1994	20.9	23.4	11.3
1995	20.7	23.5	11.6
1996	20.8	23.4	11.7
1997	20.9	23.3	11.5

Source: Quarterly Labour Force Survey.

Ignores cases reporting more than 70 days (less than ½ %), as well as non-responders.

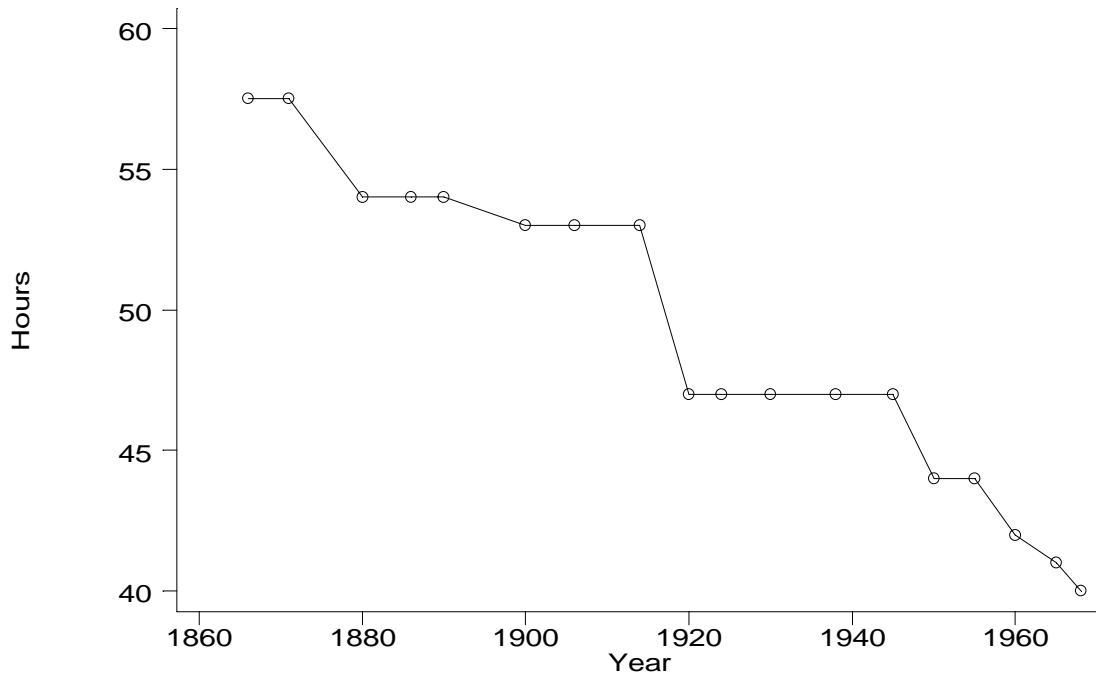


Figure 1 Weekly Hours of Fitters and Turners

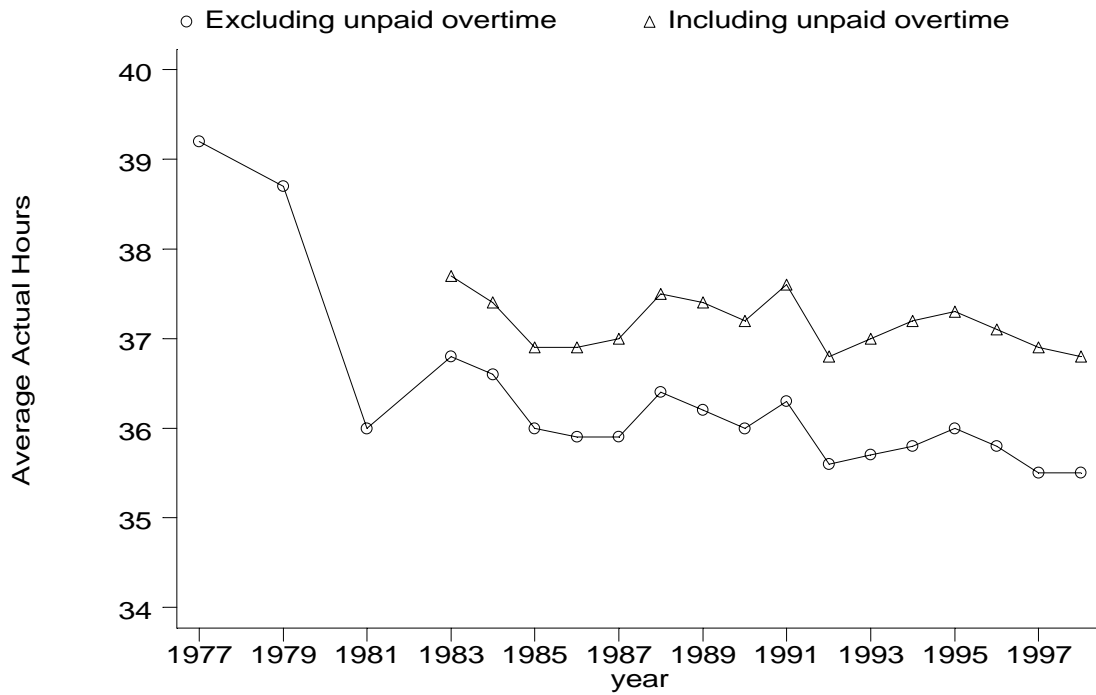


Figure 2 The Working Week

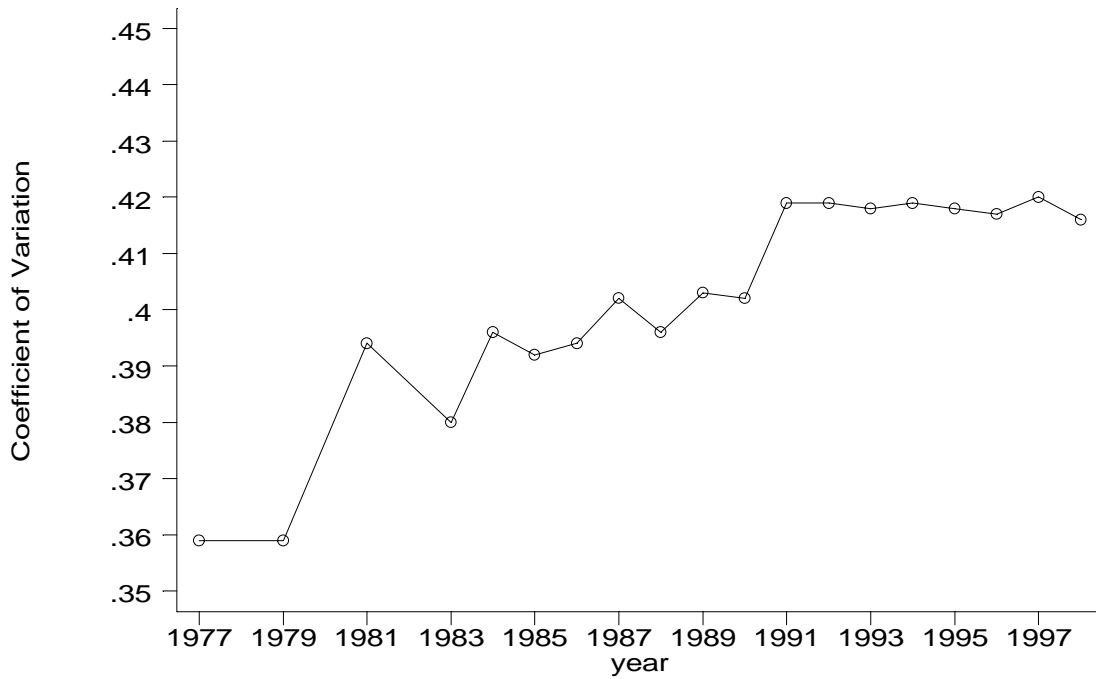


Figure 3 Hours Dispersion

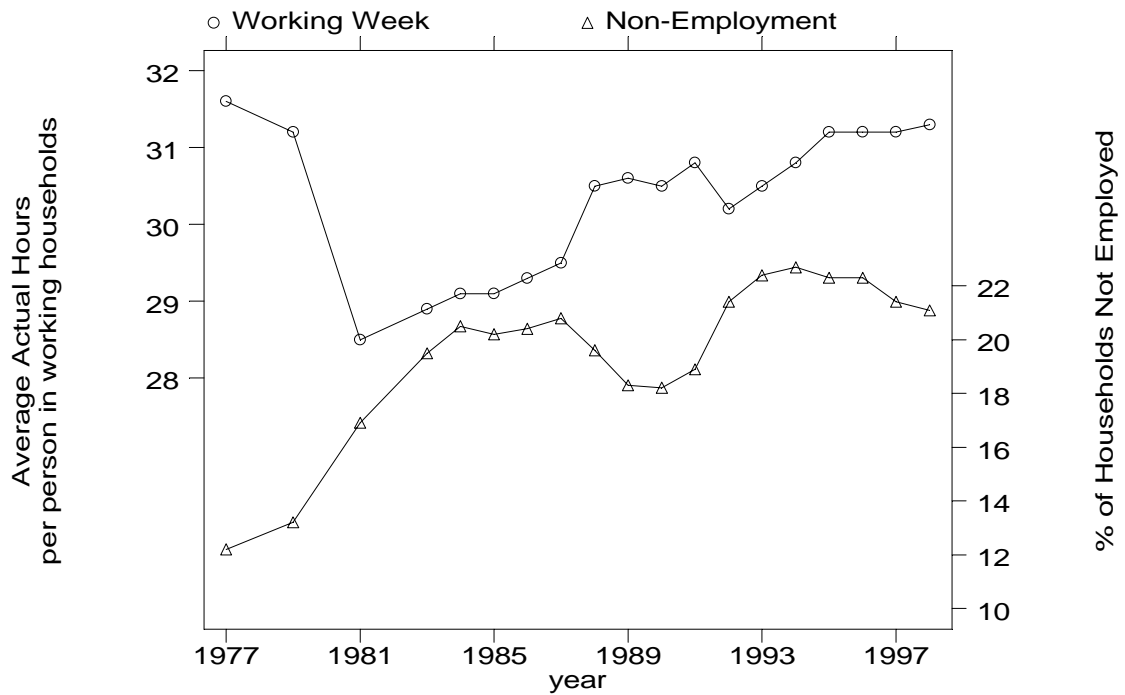


Figure 4 The Household Working Week