GENDER AND THE INTENSIFICATION OF WORK: 

EVIDENCE FROM THE EUROPEAN WORKING CONDITIONS SURVEYS 

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INTRODUCTION 

The European Foundation’s European Working Conditions Survey in 2000 collected information on the working conditions, health, and well-being of the employed in the fifteen EU member states. The information was collected from individual workers in face-to-face interviews, in which the workers were asked to describe a number of aspects of their work and workplaces through a series of structured questions. Two previous surveys were carried out in 1991 and 1995-96 that permit an analysis of trends in some working conditions, and this latest survey has been expanded to include a much wider range of issues. 

The first prototype survey was conducted in 1991 in the twelve member states at that time. The second expanded survey was conducted in 1995–96, and was a representative sample of 1,000 workers in each of the fifteen member states. The questionnaire was more extensive and was administered in face-to-face interviews away from the workplace. The survey in 2000 was extended and refined further. The sample size was approximately 1,500 in each country (500 in Luxembourg) collected from a household-based sampling frame with one employed person per household selected for interview. 

The focus of this paper is on work intensity and gender. Section 1 discusses some pertinent methodological issues related to using the European Working Conditions Survey to assess trends in working conditions. Section 2 investigates the changes in the intensity of work over the period 1991–2000, and section three explores the relationship between working conditions (including the intensity of work) and health and work-life balance. 

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THE EUROPEAN WORKING CONDITIONS SURVEY: METHODS AND TECHNICAL ISSUES IN ASSESSING TRENDS

The repeated cross-sectional nature of the European Working Conditions Survey is ideal for assessing the changing nature of working conditions in the EU. Merllié and Paoli [2001] monitor the changes in the surveys among 1991, 1996, and 2000. On most issues they conclude that there have been few changes in working conditions over the period. Their analysis shows that the gender differences in experience of these working conditions have also remained broadly stable. A notable exception to this is the observed changes in the intensification of work.

This paper will investigate these changes by examining them separately for men and women. Like Merllié and Paoli [2001], we conclude that continuity is the norm and change is the exception. The exceptions, where male and female workers are either converging or diverging in their experiences of work, are important, however. Before describing these changes, we will discuss some of the methodological aspects of these analyses.

Many of the questions asked in 2000 were identical to those asked in 1996 and, to a lesser extent, in 1991. In theory, then, comparisons between these data sets should provide a neat opportunity to draw conclusions about changing working conditions over this period.

In most cases, great care has been taken by those involved in producing the questionnaire to ensure consistency between waves where possible. In some cases, however, subtle changes to questions, filters, or response categories have made questions incompatible. The analyses in this paper have been carefully selected to avoid any such biases.

Because of concerns that the measurement of work intensity by self-report is open to bias, some authors have considered the possibility of measuring intensity of work through other, more objective methods, such as productivity or ergonomic studies. All of these alternatives, however, give rise to more substantial measurement problems than self-report [Green, 2001; Burchell, 2002], so the generally agreed position is that there is no viable alternative.

Another potential issue concerns our approach to analyzing the relationship between gender and working conditions over time. Time series analysis by gender minimizes the usual problems of prior variables giving spurious correlations. With many other variables of interest in the European Working Conditions Survey, such as the relationship between occupational class and health, one cannot simply assume that observed differences in health between occupation classes represent an effect of class on health. It could be that chronically less healthy or less resilient individuals tend to drift into less skilled or less challenging jobs. As there are no variables that are causally prior to gender, this type of "social drift" process is not a problem in analyses involving gender.

Gender simply divides workers into two categories, however, both of which are still highly heterogeneous. It is therefore important to consider some other variables in this analysis, which might be as important, or more important, in understanding changes in the labor market over time, either as main effects or in their interaction with gender. A number of such variables might need to be taken seriously to understand
changing gender gaps over time; occupation, sector, age, working time, and country are all obvious candidates. In order to keep the analyses of the large number of outcome variables manageable, the analyses will be restricted to take account of just one other such variable—occupational class—in the initial exploratory analyses. This variable was chosen primarily for a priori theoretical reasons, although subsequent analyses confirmed its primary importance in understanding the differential change in men’s and women’s labor market position over time. It was operationalized as a simple blue-collar/white-collar split, although it is possible to disaggregate the occupational data further into one-digit or two-digit International Standard Classification of Occupations (ISCO) categories. As subsequent analysis will show, not only is the difference between manual and nonmanual employees considerably greater than the difference between men and women, it is not uncommon for the change for men and women between waves to be in different directions.

Furthermore, gender and collar are themselves related due to occupational segregation: in waves 2 (1996) and 3 (2000) combined, 49 percent of men are in blue-collar jobs compared with only 23 percent of women. Therefore, any relative improvement in the working conditions of white-collar workers relative to blue-collar workers is going to seem like an improvement in the conditions of women over men (which, in a way it is, but this is a strange path to gender equality!).

The final issue is the comparisons that are possible across the waves. Comparisons between 2000 (wave 3) and 1996 (wave 2) are relatively straightforward. The 1991 survey (wave 1), however, differed in several important ways; for example, it included only twelve countries. Omitting the three new countries (Austria, Sweden and Finland) from all the trend analyses that include the 1991 data will overcome this difference.

Wave 1 also included far fewer variables, and sometimes their wording or filtering was a little different. In particular, the measurement of occupation was different, with a self-classification into twelve occupational/industrial categories. Several of these categories straddled the manual/nonmanual divide (for example, farmer, fisherman, supervisors). For these reasons the analyses that include wave 1 were not broken down by collar.

The most illuminating way to explore the change over time of working conditions by gender and collar is graphically, as shown in Figure 2. If the four lines (representing each combination of gender and collar) are not parallel, a logistic regression can be estimated to determine the significance of the differences by wave, by gender, by collar, and (of particular interest) the interactions between gender by wave and gender by collar by wave. These two interaction terms detect differential change over time of men and women. These analyses become much more complex for polychotomous dependent variables, therefore all variables will be collapsed into two categories for the purposes of this analysis.

CHANGES IN WORK INTENSITY, 1991–2000

Using the European Working Conditions Survey it was possible to explore whether the association between gender and the intensity of work had changed between 1991–2000 and, in addition, to incorporate the occupational distinction of blue-collar and white-collar for comparisons between 1996 and 2000. The speed of work is a key element of
work intensity. The proportion of time that respondents worked at high speed was collapsed from seven categories, ranging from all the time to never, into two categories: around a quarter of the time or less, and around half the time or more.

An analysis including wave 1 data for the twelve older EU countries showed that this closing of the gender gap in the speed of work is part of a longer trend, as shown in Figure 1. A logistic regression revealed that the wave by gender interaction was significant for the first time period, but not for the second. As can be seen in Table 1, a logistic regression (conducted in SPSS) shows which of the features of Figure 1 were statistically significant. The effect of wave was significant between waves 1 and 3 ($\chi^2 = 125, df = 1, p < 0.0005$) but not between waves 2 and 3 ($\chi^2 = 1.89, df = 1, p = 0.17$). Similarly, the convergence of males and females was significant between waves 1 and 2 ($\chi^2 = 9.6, df = 1, p = 0.002$) but the convergence between waves 2 and 3 was not ($\chi^2 = 0.2, df = 1, p = 0.65$). As a further check on the contribution of the sex by wave interaction to the model, the goodness of fit was significantly better in the model with the interaction term than without the interaction term ($\chi^2 = 10.4, df = 2, p = 0.005$). Thus we can be confident of the convergence between the sexes over the period 1991 to 1996, but not over the period 1996 to 2000.
TABLE 1

<table>
<thead>
<tr>
<th>Step 1</th>
<th>B</th>
<th>S.E</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex(1)</td>
<td>.013</td>
<td>.031</td>
<td>.166</td>
<td>1</td>
<td>.684</td>
<td>1.013</td>
</tr>
<tr>
<td>WAVE</td>
<td></td>
<td></td>
<td>136.392</td>
<td>2</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>WAVE(1)</td>
<td>-.430</td>
<td>.038</td>
<td>125.405</td>
<td>1</td>
<td>.000</td>
<td>.651</td>
</tr>
<tr>
<td>WAVE(2)</td>
<td>-.050</td>
<td>.037</td>
<td>1.890</td>
<td>1</td>
<td>.169</td>
<td>.951</td>
</tr>
<tr>
<td>Sex*WAVE</td>
<td></td>
<td></td>
<td>10.374</td>
<td>2</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td>Sex(1) by WAVE(1)</td>
<td>.153</td>
<td>.050</td>
<td>9.566</td>
<td>1</td>
<td>.002</td>
<td>1.166</td>
</tr>
<tr>
<td>Sex(2) by WAVE(2)</td>
<td>.022</td>
<td>.048</td>
<td>.202</td>
<td>1</td>
<td>.653</td>
<td>1.022</td>
</tr>
<tr>
<td>Constant</td>
<td>-.271</td>
<td>.024</td>
<td>132.995</td>
<td>1</td>
<td>.000</td>
<td>.762</td>
</tr>
</tbody>
</table>

FIGURE 2
The change in speed of work by gender and collar

Figure 2 explores this latter period in more detail. It clearly shows that there seems to have been an increase in the speed of work for three of the four gender-class groups, but a decrease for male white-collar workers, over the second half of the 1990s. It is also clear from Figure 2 that at both points in time blue-collar workers report working faster than white-collar workers. A logistic regression was calculated with just the three main effects (wave, collar, and gender). Adding the three two-way
interactions produced a marginal improvement in the goodness of fit of the model over a model with just the three main effects of wave, collar, and gender ($\chi^2 = 10.2$, df = 3, p = 0.017). When the three-way interaction between these variables was added to the variables, the fit of the model was significantly improved ($\chi^2 = 7.5$, df = 1, p = 0.006). As can be seen in Table 2, with all the main effects and interaction terms in the model, the only terms that are statistically significant are the effect of collar (such that blue-collar workers report working faster than white-collar workers) and the three-way interaction. The significant three-way interaction demonstrates that while the white-collar males showed a slight decrease in the intensity of work between 1995–96 and 2000, the blue-collar males and both categories of female workers showed an increase in intensity. So while there was a significant relationship between gender and changes in the rates of work intensity in the first half of the 1990s, by the latter period this had been modified through the diverging experience of men and women in white-collar jobs.

**TABLE 2**

**Logistic Regression of the Change in Speed of Work by Social Class and Gender, 1995–2000**

<table>
<thead>
<tr>
<th>Step 1</th>
<th>B</th>
<th>S.E</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAVE(1)</td>
<td>.084</td>
<td>.065</td>
<td>1.654</td>
<td>1</td>
<td>.198</td>
<td>1.087</td>
</tr>
<tr>
<td>COLLAR(1)</td>
<td>.180</td>
<td>.050</td>
<td>12.729</td>
<td>1</td>
<td>.000</td>
<td>1.197</td>
</tr>
<tr>
<td>EF10(1)</td>
<td>.018</td>
<td>.052</td>
<td>.117</td>
<td>1</td>
<td>.732</td>
<td>1.018</td>
</tr>
<tr>
<td>EF10(1) by WAVE(1)</td>
<td>.086</td>
<td>.076</td>
<td>1.273</td>
<td>1</td>
<td>.259</td>
<td>1.090</td>
</tr>
<tr>
<td>COLLAR(1) by WAVE(1)</td>
<td>.031</td>
<td>.075</td>
<td>.168</td>
<td>1</td>
<td>.682</td>
<td>1.031</td>
</tr>
<tr>
<td>COLLAR(1) by EF10(1)</td>
<td>.107</td>
<td>.063</td>
<td>2.923</td>
<td>1</td>
<td>.087</td>
<td>1.113</td>
</tr>
<tr>
<td>COLLAR(1) by EF10(1) by WAVE(1)</td>
<td>-.256</td>
<td>.094</td>
<td>7.504</td>
<td>1</td>
<td>.006</td>
<td>.774</td>
</tr>
<tr>
<td>Constant</td>
<td>-.001</td>
<td>.045</td>
<td>.001</td>
<td>1</td>
<td>.982</td>
<td>.999</td>
</tr>
</tbody>
</table>

Our analysis shows that working intensity—measured by the perceived speed of work—had increased for both sexes over the period 1991–2000, but the increase had been greatest among women, so that the “gender gap” in exposure to this working condition had decreased over time. Furthermore, a disaggregation of the change in intensity in the period 1995-2000 showed that white-collar males actually experienced a reduction in their intensity of work.

Much of the literature on the intensity of work assumes that the intensification of work is a relentless and unidirectional process, and the results of these analyses of the European Working Conditions Surveys showing an “end of intensification” were initially a surprise. At the conference on the intensification of work where these results were first presented, however, two other papers, using different data sets, one from the UK and one from the EU, both came to remarkably similar conclusions, that there was a significant increase in the first half of the 1990s and little change in the second half of the 1990s (Green, in this volume, and Gallie [2002], respectively).

It is always difficult to explain the causes of changes in international labor markets, particularly when those changes were not predicted and are not assumed to have simple causes. There are a number of possibilities for this slowdown in intensification. It could be that the new forms of human resource management introduced in the 1980s and early 1990s had a one-off impact on the intensity of work that has taken
place, and we will not see any other significant change until there is another widespread change in management practice. Or, in the terms that Marx used to describe the intensity of work, perhaps management has succeeded in removing the porosity in the working day, so that there is no more slack to remove. Alternatively, the intensity of work could be related to the business cycle or global economic phenomena, and may cycle with them. Yet another possibility is that the workforce’s awareness of work intensity has changed. On the one hand, this might mean that a more intense pace of work has been normalized in work practices, so that what was once considered “fast” is now considered to be the usual pace of work, thus influencing how people respond to such questions. On the other hand, it is possible that employees are becoming aware, through the media reports of stress at work, that there are personal costs associated with the intensity of work in terms of health and quality of life and are actively taking steps to reduce the intensity of their work. (Details of recent European policy campaigns and legal interventions in responding to issues of stress at work through excessive workloads are given in the concluding section of this paper). This increased awareness of stress through overwork may explain why the white-collar males, the group associated with the highest levels of power and autonomy in the workforce, were working less intensively in 2000 than they did in 1995–96.

It is impossible to predict whether this levelling off of the intensity of work in the last few years is the temporary respite before another increase, or the start of a decline. Whatever the future trends in the intensity of work, the next section of this paper demonstrates why it is such an important issue.

THE IMPACT OF WORKING CONDITIONS ON HEALTH AND WORK-FAMILY COMPATIBILITY

In this section we examine the impact of men’s and women’s working conditions on their health and their “work-life balance.” Due to concerns about the compatibility of the 2000 data with the earlier waves (that is, there were changes in the health questions, and the question concerning work-life balance was only introduced in the 2000 wave) these analyses use only the 2000 data. However, other analyses of the earlier waves also show strong relationships between the intensity of work and health [Ladipo, Mankelow, and Burchell, 2003; Wichert, 2002].

As already discussed, the survey relies on people’s reports of their health, rather than medical measures. Self-report data will not provide the same level of accuracy as medical assessments, but they do provide a reasonable reflection of variations in relative health across the working population. The correlations that are found between certain working conditions and reported health suggests that self-report measures are reasonably reliable. Another criticism of self-report data is that they are affected by “negative affectivity” or, in other words, people with a negative or pessimistic disposition are more inclined to report that they feel stressed or have other negative health effects than “optimists” exposed to similar conditions. Research has shown, however, that even when personality dispositions are controlled for, this has little effect on the correlations found between working conditions and stress [Jex and Spector, 1996; Spector et al., 2000]. Furthermore, the causality is complex, for working conditions themselves influence whether people have a positive or negative outlook [Payne,
Therefore, despite the inevitable subjective element in people’s assessments of their health, the aspects of health that were covered in the survey are judged to be measured with sufficient reliability for this analysis.

Sixty percent of the employed report that their job affects their health in some way (Table 3). Paradoxically, most of the respondents are thinking about the negative effects of employment on their health, as only 1 percent mention that their job has a positive impact on their health even though we know that employment causes, on average, better health than unemployment.

There are few gender differences in men’s and women’s perceptions of the health problems caused by their jobs. We have grouped together a number of stress-related symptoms, which is the most frequently reported condition. High stress levels are associated with negative working conditions, such as excessive workloads over which people feel they have little control or poor workplace relationships [Jex and Spector, 1996; Spector et al., 2000]. If all indicators of stress are counted, then over 40 percent of the workforce have at least one symptom of stress from their jobs. If a narrower definition is drawn, then we still find that over 25 percent of employed women and men report at least two stress-related symptoms.

**TABLE 3**

Men’s and Women’s Assessments of the Health Impact of their Jobs

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearing problems</td>
<td>10</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Vision problems</td>
<td>9</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Allergy-related problems</td>
<td>10</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td><em>(allergies, skin problems, respiratory difficulties)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muscle-related problems</td>
<td>29</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td><em>(backache &amp; other muscular pains)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress-related problems</td>
<td>19</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td><em>(headaches, stomachaches, heart disease, anxiety, irritability, sleeping problems, “stress”)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One symptom</td>
<td>25</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>At least two symptoms</td>
<td>44</td>
<td>43</td>
<td>44</td>
</tr>
<tr>
<td>Total with some stress symptoms</td>
<td></td>
<td></td>
<td>44</td>
</tr>
</tbody>
</table>


Muscle-related problems are prevalent, affecting 30 percent of employed women and 29 percent of employed men. Backache is the most common of the muscle-related complaints. Smaller minorities of the workforce suffer from hearing, vision, or allergy-related problems due to their working conditions, with men more at risk for these health problems than are women.

Other analyses of the health effects of the intensity of work suggest that, far from being limited to a few specific health effects, the intensity of work is correlated significantly with a wide range of symptoms, from backache to headaches, and from skin problems to insomnia [Wichert, 2002]. So, in the analyses in this paper a health index is created out of all of the individual types of work-related health problems included in the survey. Disaggregated analyses, however, yielded similar results.
Our first analysis in this section of the paper looks at the effect of a number of potentially important working conditions simultaneously on the number of ill-health symptoms arising from work. By looking at all of the possible causes of illness at work in the same model, we get a better idea of which variables are important, other variables being held constant, and which ones might be only spuriously connected to health at work.

The dependent variable was created by adding together all nineteen illnesses reported to be caused by work in the questionnaire (backache, headache, anxiety, etc.). This produced a variable with a pronounced negative skew, so it was recoded into four categories to normalize the distribution.

**Multiple Regression to Predict Illness from Work**

A multiple regression analysis was run to predict the illness score from fourteen variables:

1. An index of exposure to poor ergonomic conditions (repetitive hand or arm movements, painful or tiring positions, carrying or moving heavy loads).
2. Has disruptive interruptions at work.
3. An index of exposure to hazardous physical and material conditions (loud noise; vibrations; breathing vapors, fumes, or dust; high or low temperatures; handling dangerous items; radiation).
4. An index of unsocial hours of work (working evenings, nights, and long days).
5. An index of work intensity (speed of work, tightness of deadlines, and not having enough time to do the job).
6. Older age.
7. Gender (being female).
8. Occupational status groups (Dummies for higher and lower skilled manual and nonmanual jobs; base category = lower skilled manual).
9. An index of time autonomy (whether the worker can influence his or her working hours).
10. The number of hours of work.
11. The number of sources of pace setting (from customers, pupils, clients, etc; colleagues; managers or supervisors; production targets; machines).
12. An index of hours variability in the work schedule.
13. An index of weekend working.

The first ten variables in this list entered the model using the stepwise procedure ($p_{IN} = .005$, $p_{OUT} = .01$) and accounted for 23 percent of the variance in the illness score. They are listed in order of the strength of the relationship with the illness index (see Table A1 in the Appendix for further details of regression analysis).
This analysis showed that the following working conditions each increased the risk of work-related illness: exposure to poor ergonomic conditions, work that involves disruptive interruptions, exposure to physical or material hazards, unsocial hours, long hours, and a high degree of work intensity. Having some autonomy over working time slightly reduced the risk of work-related illness. When these particular working conditions are controlled for, an additional risk of work-related illness remains for those people working in managerial or professional work and, to a lesser extent, in skilled manual work.

In the initial bivariate exploration, there was no relationship between gender and the number of illnesses caused by work, but men tend to work in worse ambient conditions. Controlling for this difference in work conditions, however, uncovered a tendency for women to report more work-related illnesses. Older workers of either sex were also more likely to report work-related illnesses.

Task autonomy was not significantly related to illness scores in any of the models. The other variables (number of sources of pace-setting, hours variability, weekend working) were excluded from the model because they did not have statistically significant relationships with the illness scores when other variables were added in.

In order to examine the relative strength of the variables included in this model on men and women, two-way analyses of variance were conducted in turn to examine the combined effects of sex and each of the variables in this list on work-related illnesses. These models permit us to explore not only the separate effects of gender and working conditions on health, but also to examine the complex interactions between these variables.

**FIGURE 3**

*Effect of Disruptive Interruptions on Illness Score*

![Chart showing the effect of disruptive interruptions on illness score by sex.](image)
A consistent pattern emerged, which can be seen, for example, in Figure 3. Clearly, disruptive interruptions are associated with higher levels of work-related illness for both men and women, but the effect on women is more severe than is the effect on men. The same can be seen for the intensity of work, where again the healthiest group are the women who work in jobs with the least time pressures, and the unhealthiest group are the women with the most time pressures at work (Figure 4). The evidence from Figures 3 and 4 suggests that women have more to gain from an improvement in working conditions, but it tells us little about why women’s health is more influenced by their working conditions than that of men. Further exploratory analyses (not reported here) suggest that controlling for women’s greater levels of domestic work and responsibilities does not diminish this effect. Additional analyses are needed to determine whether it might be due to: the nature of the jobs that women do, the greater accuracy of their self-reported health, a greater susceptibility to stress, or some other reason.

FIGURE 4
Effect of Fast Work and Lack of Time on Illness Score

The combined effects of occupational group and sex are also complex. Women are most heavily concentrated in clerical jobs, which have the lowest levels of occupational illness, and men strongly outnumber women in skilled manual jobs, which have the highest levels of occupational ill health. But within each of the occupational categories, except the less skilled blue-collar ones, men doing those jobs were healthier than women.

A multiple regression was also conducted to determine the combined effects of working conditions on the responses to the question “In general, do your working
hours fit in with your family or social commitments outside work very well, fairly well, not very well, or not at all well?” Using the same set of independent variables, a stepwise multiple regression produced a model with the following variables (in order of importance, judged by the standardized regression weight) (see Table A2 in the Appendix for further details of the regression analysis):

1. An index of unsocial hours of work;
2. An index of weekend working;
3. The number of hours of work;
4. An index of time autonomy;
5. An index of work intensity;
6. An index of exposure to poor ergonomic conditions;
7. An index of hours variability in the work schedule;
8. Has disruptive interruptions at work; and
9. An index of task autonomy.

The following variables did NOT have any significant contribution to the model (at the p < 0.01 level):

10. Occupational status group;
11. Gender (being female);
12. The number of sources of pace setting;
13. Older age; and
14. An index of exposure to hazardous physical and material conditions.

The first nine variables in the list entered the model using the stepwise procedure (pIN = .005, pOUT = 0.01) and accounted for 21.6 percent (adjusted R^2) of the variance in the work-life balance score.

Clearly, in the case of work-life balance, as measured by this variable, the three most important variables point to the negative aggregate effects of unsociable hours and long hours. These variables all show strong, linear relationships such that the greater the level of nonstandard hours, the greater the dissatisfaction.

The last five variables entered into the regression had considerably weaker effects on work-life balance, but they suggest that conditions within the job, such as the intensity of work, the flow of work, poor ergonomic conditions, and limited control over tasks, can also affect perceptions of the compatibility of work and nonwork.

Separate analyses were conducted to investigate whether there were gender differences in the effects of working conditions on work-life balance. The differences were minor; all of the effects described above were similar for men and women.

In this section we have used multivariate analysis to examine which working conditions have the greatest impact on the probability of work-related illness and whether or not the job is judged to offer work-family compatibility. Each of the following working conditions was found to have a significant and independent effect on the probability of having work-related illness. The “traditional” health and safety hazards of poor ergonomic, physical, and material conditions are bad for health. A number of aspects of working-time conditions—having disruptive interruptions in the workday, unsociable work schedules (evening, nights, or long days), an intense pace of work and long hours of work—also increased the risk of work-related illness. Working-time
autonomy helped to reduce the risk of work-related illness. Once specific working conditions are taken into account, being in managerial, professional, or skilled manual work further increases the risk of work-related ill-health.

When differences in men’s and women’s working conditions and occupational positions are controlled for in the analysis, we found that women were more susceptible to work-related ill-health than men. This issue requires further analysis and consideration in light of the current review of the EU regulatory framework on health and safety.

The key working conditions that reduce the “work-family” compatibility of jobs are long and unsociable hours, for both women and men. Working-time control or autonomy had a positive effect, but the effect is weak compared to the negative effect of unsociable hours. It appears that a low level of unsociable hours that the employed have no control over is more compatible with family life than a higher level of unsociable hours over which they have some apparent control. Gender and occupation had no independent effect on “work-family compatibility” once the actual working conditions were taken into account.

CONCLUSIONS

Returning to the central theme of this paper, it is clear that intensity of work is associated with negative outcomes for both health and work-life balance. Therefore, the new evidence that work intensity has not continued to increase in the EU over the period 1995–96 to 2000 is good news for the quality of working life. There is evidence, also, that both employees and employers across the EU are becoming more aware of the dangers involved in stress brought about by unmanageable workloads. This is treated as an important concern by the European Commission in its new strategy on health and safety at work for the EU [European Commission, 2002], and relevant new legislation has been passed in the Framework Directive on Health and Safety at Work (89/391/EEC), which has recently been agreed to by the European trade unions’ and employers’ federations. This directive covers all workplace hazards, including work intensity and stress, and introduces the requirement for workplace risk assessments to be undertaken and preventive measures to be introduced. In connection with this, in 2002 the European Agency for Safety and Health at Work launched the first pan-European campaign to combat work-related stress as the focus for the annual European Week for Safety and Health, backed by the European Commission and the European trade unions’ and employers’ federations [European Agency for Safety and Health at Work, 2002; TUTB, 2002]. The International Labour Organization also has a major initiative underway to combat workplace stress.6

Within the member states there is also much activity concerned with addressing work intensity and work-related stress [TUTB, 2000]. For example, in the UK the annual Focus on Services for Injury Victims survey [Trades Union Congress, 2002] showed that the number of new personal injury claims taken by unions was slightly down on the 2000 figures but work-related stress cases soared. Work-related stress cases (many involving accusations against employers of unmanageable workloads) brought by unions on behalf of their members increased twelvefold, with 6,428 new
cases reported in 2001, compared with just 516 in 2000. The UK courts have also made some useful clarifications on the rights and responsibilities of both employees and employers in dealing with stress at work and the fixing of compensation levels [Palmer, 2002]. Although this had the immediate effect of reducing or overturning some previous compensation payments at appeal, the ruling was generally welcomed as a useful clarification by both employers’ organizations and the Trades Union Congress.

This paper has shown that during the 1990s the intensity of work in the EU increased and then leveled off. The future direction of change is difficult to predict; analysis of the next European Working Conditions Survey in 2005 will provide the next clear evidence on the direction of change. There is mounting evidence, however, of a strong link between the intensity of work and the quality of working life. The challenge for labor market researchers is to control this threat to health and work-life balance, but the mechanisms for successfully doing this are not yet clear.

APPENDIX

The Multivariate Regression Results

<table>
<thead>
<tr>
<th>TABLE A1</th>
<th>Working Conditions that are Significantly Associated with Men’s and Women’s Ill-Health (NILLNESS – NTILES of ILLNESS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Unstd. Coeff.</td>
</tr>
<tr>
<td>(Constant)</td>
<td>.959</td>
</tr>
<tr>
<td>Poor ergonomic conditions</td>
<td>.306</td>
</tr>
<tr>
<td>Disruptive interruptions</td>
<td>.392</td>
</tr>
<tr>
<td>Hazardous exposure</td>
<td>.209</td>
</tr>
<tr>
<td>Works long days/evenings/nights</td>
<td>.07529</td>
</tr>
<tr>
<td>High work intensity</td>
<td>.175</td>
</tr>
<tr>
<td>Age</td>
<td>.08634</td>
</tr>
<tr>
<td>Female</td>
<td>.177</td>
</tr>
<tr>
<td>Managerial or prof. occ. dummy</td>
<td>.138</td>
</tr>
<tr>
<td>Has some infl. over own work time</td>
<td>−.06284</td>
</tr>
<tr>
<td>Number of hours worked</td>
<td>.02906</td>
</tr>
<tr>
<td>Skilled manual occupation dummy</td>
<td>.07064</td>
</tr>
</tbody>
</table>

Dependent Variable: NTILES of ILLNESS, based on a count of the number of symptoms identified at Q35.

Variables excluded from model: hours variability, skilled manual dummy, number of sources of pace-setting, task autonomy, weekend working (all not significant at the 0.01 level).
### TABLE A2
Regression Results for the Working Conditions that are Associated with Men’s and Women’s Dissatisfaction with their Work/Life Balance (Q20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.212</td>
<td>.021</td>
<td></td>
<td>56.614</td>
<td>.000</td>
</tr>
<tr>
<td>Works long days/evenings/nights</td>
<td>.119</td>
<td>.004</td>
<td>.248</td>
<td>30.948</td>
<td>.000</td>
</tr>
<tr>
<td>Works at weekends</td>
<td>.110</td>
<td>.006</td>
<td>.145</td>
<td>19.461</td>
<td>.000</td>
</tr>
<tr>
<td>Has some infl. over own work-time</td>
<td>-.103</td>
<td>.007</td>
<td>-.103</td>
<td>-14.396</td>
<td>.000</td>
</tr>
<tr>
<td>Number of hours worked</td>
<td>.07634</td>
<td>.004</td>
<td>.123</td>
<td>17.990</td>
<td>.000</td>
</tr>
<tr>
<td>High work intensity</td>
<td>.07931</td>
<td>.008</td>
<td>.066</td>
<td>9.850</td>
<td>.000</td>
</tr>
<tr>
<td>Poor ergonomic conditions</td>
<td>.04101</td>
<td>.005</td>
<td>.057</td>
<td>8.636</td>
<td>.000</td>
</tr>
<tr>
<td>Hours of work variability</td>
<td>.08344</td>
<td>.012</td>
<td>.045</td>
<td>6.722</td>
<td>.000</td>
</tr>
<tr>
<td>Disruptive interruptions</td>
<td>.08753</td>
<td>.013</td>
<td>.045</td>
<td>6.875</td>
<td>.000</td>
</tr>
<tr>
<td>Has some autonomy in work methods, order, and breaks</td>
<td>-.04198</td>
<td>.008</td>
<td>-.040</td>
<td>-5.549</td>
<td>.000</td>
</tr>
</tbody>
</table>

Dependent Variable: Q20 “In general, do your working hours fit in with your family or social commitments outside work very well, fairly well, not very well, or not at all well?”

Variables excluded from model: sex, age, occupation dummy variables, hazardous exposure, number of sources of pace-setting (all not significant at the 0.01 level).

### NOTES

1. The white-collar category was created by collapsing ISCO codes 1–5 (legislators, professionals, technicians, clerks, and service workers), and the blue-collar category by collapsing ISCO codes 6–9 (agricultural and fisheries, crafts, plant and machine operatives, and elementary professions).
2. An interaction here refers to a complex relationship among three or more variables, whereby the relationship between two of the variables is moderated by a third variable. For instance, the relationship between an infectious disease (variable 1) and health (variable 2) might be dependent on the state of the body’s immune system (variable 3). In this case, we are examining whether there is a change in the relationship between the aspects of working conditions (variable 1) and gender (variable 2) over time (variable 3), also taking into account occupational class (variable 4). Logistic regression is a technique ideally suited to investigating such complex relationships between a number of variables, and is particularly well suited to categorical variables like gender and class.
3. The Wald statistic is used to test the statistical significance of each term in a logistic regression. It behaves similarly to a χ² statistic, and is the functional equivalent of the t-statistic in a least-squares regression.
4. The percentages given are those who say that they work at speed “about half of the time” or more, on a scale from “never” to “all of the time.”
5. The illness scores were derived from the number of illnesses that respondents reported were caused by their work, chosen from the list of nineteen illnesses presented to them. To remove the strong upward straggle in the variable, it was recoded into four groups: 0, 1, 2–3, 4+.

### REFERENCES


