WORK-SHARING, WORKING TIME RIGIDITIES, AND EFFICIENCY

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Abstract:

This paper analyses in a theoretical setting the impact of work-sharing policies on employment and welfare. When posting a job vacancy, firms ignore the level of the demand for their product. Firms and workers bargain over the hourly wage corresponding to the legal workweek. After the realisation of the level of the product demand, each individual firm and worker can also agree on modifying the working time (reducing it or prolonging it through overtime). In this second best economy, we show that if the demand faced by low-demand firms and/or the overtime premium are “small enough”, a reduction of the legal working time leads to an increase in the employment level and in the welfare of both firms and individuals. This efficiency gain comes from a reallocation of hours from low- to high-demand firms. If these conditions are not fulfilled, work-sharing leads to a loss in efficiency. We also show that a decrease in the overtime premium rather than an increase may be a condition for work-sharing policies to be successful in welfare and employment terms.

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An important policy debate in Europe is that of the suitability of a reduction of the legal working week as a means of fighting unemployment ("work-sharing"). Though this controversy is a rather old one, the measures taken recently by some European governments\(^1\) have renewed the interest on the study of its consequences. While the proponents of "work-sharing" argue essentially that reducing the workweek will provide incentives for substituting workers for hours of work, the opponents claim that it will rather lead to (further) replacing men with machines.

Neither the empirical nor the theoretical literature seem to have arrived at a consensus concerning the effects of work-sharing. As for the former, e.g. Faini and Schiantarelli (1985) and Franz and König (1986) find positive effects, while Brunello (1989) or Hunt (1999), Kramarz and Crépon (1999) and Hernanz, Izquierdo and Jimeno (1999) conclude on the existence of detrimental effects on employment. The theoretical analyses have identified a series of effects going in opposite directions. Calmfors (1985) studies the issue of work-sharing in an economy in which a monopoly union sets the wage. The sign of variation of the wage after work-sharing is ambiguous. However, in the case of perfect substitutability between workers and hours, it is possible to find conditions under which a cut in the legal working time enhances labour income and employment. d’Autume and Cahuc (1997) analyses the case of Nash-bargained wages with different diminishing returns associated to employment and hours. The employment effects of work-sharing depend in that case on the relative values of the elasticities of output with respect to hours and with respect to workers. Calmfors and Hoel (1988) provides a Walrasian framework to address the issue of work-sharing when overtime is determined endogenously\(^2\). If the overtime cost is independent of overtime, a reduction in their normal working time acts like an increase in the fixed cost per worker without altering the marginal cost. Thus, firms substitute longer working time for employment. Positive employment effects can be found only if the overtime pay rises with overtime. The conclusions of the efficiency wage model of Moselle (1996) are also ambiguous: in his paper, small reductions in the legal working time lead to increased employment, while further cuts cause losses in employment. Marimon and Zilibotti (1999) construct a matching economy in order to compare its outcomes when hours are bargained

\(^{1}\) From January 2000, the legal workweek in France has been shortened from 39 to 35 hours for firms employing over 20 workers (see appendix 9 for details on the French laws). Askenazy (2000) studies the possible economic impact of this law in a theoretical model and argues that the law favours an organisational restructuring of French firms that boosts job creation.
between the agents and when they are regulated. The authors argue that though the employment effect of work-sharing are not necessarily positive in terms of employment, workers will tend to prefer restrictions of the working time because this type of measures benefits them in distributional terms. Finally, Rocheteau (2000) combines the efficiency wage and matching approaches and argues that positive employment effects of this measure should be expected in situations in which the unemployment problem is acute (in high unemployment economies).

This paper explores another way in which work-sharing can affect the employment level of an economy and the welfare of firms and employees. More precisely, this channel identifies the circumstances under which work-sharing increases (or decreases) the efficiency of the equilibrium in a second best economy. Indeed, most European economies are characterised by the existence of a legal workweek. The importance of such an institution appears clearly when looking at the distributions of the effective working time in continental Europe, as remarkable peaks can be observed at the duration corresponding to the legal workweek [for instance, 43% of the French employees were employed for 39 hours in 1999 and 55% of the Spanish employees for 40 in 1996 (see figures 5 and 6)]

Our economy consists of a fixed number of individuals and an endogenous number of firms, and meetings between individuals and firms are ruled by a standard matching function as in Pissarides (1990). When posting a job vacancy, firms ignore whether the demand for their product will be high or not. For this reason, the decision on the number of vacancies is based on the probability distribution of the strength of the product demand, which is known to the firm. Once an individual and a firm have met, the wage is bargained. At this stage, the working time is not negotiated and corresponds to the (exogenous) legal workweek. Then, the strength of the product demand is revealed to the agents, who decide on whether to prolong the standard working time through overtime (paid at a wage rate higher than that of normal hours) or to reduce it.

We first characterise the equilibrium distribution of hours in this economy. Even if the demand distribution has no mass points, we show that a subset of firms choose exactly the legal workweek, while the firms whose demand is above (below) a certain threshold choose

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2 This is done both for the cases in which the production level of the firm is given and when firms are profit-maximisers.
3 Similar results are obtained for the U.S. (see Fig. 7). The shape of the distribution is different in the U.K, where the legal workweek differs by sectors.
an effective duration above (below) the standard workweek. The equilibrium wage and labour market tightness are shown to depend positively on the difference between the expected value of production and the expected disutility of work.

We then explore the consequences of shortening the legal workweek in such an economy. As for the equilibrium distribution of effective hours, we show that the reduction of the legal working time (i) increases (reduces) the proportion of firms who choose the overtime (part-time) regime (ii) diminishes the effective duration of work for all firms\(^5\), but in different proportions. On average (expected) terms, the effective number of hours diminishes after work-sharing. Concerning (endogenous) wages, the total wage diminishes while the hourly wage rises.

As for the employment effects, we characterise the conditions under which work-sharing boosts employment. We show that this will be the case if and only if low-demand firms experience “small enough” demand levels and/or if the wage rate associated with overtime is relatively small. Indeed, if the former is verified, the existence of a legal working time plays the role of an undesirable downward working time rigidity, and its reduction helps alleviate this inefficiency: the resources formerly devoted to hours in low-demand firms can be transferred to high-demand firms, and the profitability of hiring a worker rises accordingly. In contrast, if overtime hours are expensive, the main inefficiency comes from the impact of the legal workweek as an upward working time rigidity, and in that case shortening the standard working time worsens employment.

We then show that whenever work-sharing boosts employment, it also leads to a Pareto-improvement of the welfare of agents, which confirms that in this framework the gains from this policy are not linked to issues of redistribution but to a gain in efficiency.

Finally, we argue that for work-sharing to be successful in terms of employment and welfare, this policy should be accompanied by a decrease rather than an increase of the overtime premium. Indeed, when account is taken of the variability of demand, cheap overtime improves the adaptability of firms to their demand, and employment and overtime are complements.

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\(^4\) We consider both an exogenous overtime wage and the more realistic case of a proportional overtime premium.

\(^5\) Except when the overtime wage is exogenous: in that case the highest demand firms do not modify their effective working time.
1. The model:

1.1 Environment:

The economy consists of N individuals and an endogenous number of firms. Firms post vacancies, and meetings between individuals and firms are ruled by a standard matching function.

Time is continuous and lasts forever. The entire analysis will be carried out in steady state.

The flow from unemployment to employment \((m)\) is determined by a constant returns to scale matching function:

\[
m = m(v, u)\tag{1}
\]

where \(v\) is the number of vacancies and \(u\) the unemployment level. Given the CRS property of the technology and the standard random matching assumption, the probability of a firm contacting a worker and a worker contacting a firm are respectively:

\[
q(\theta) \equiv \frac{m(v, u)}{v} = m\left(1, \frac{1}{\theta}\right) \tag{2}
\]

\[
\frac{m}{u} = \frac{m(v, u)}{u} = m(\theta, 1) = \theta q(\theta), \tag{3}
\]

with \(\theta \equiv \frac{v}{u}\) being “market tightness”. Denoting the exogenous separation rate by \(s\), the dynamic equation describing the model are:

\[
\frac{dL}{dt} = \theta q(\theta)u - sL. \tag{4}
\]

In a steady state, the unemployment level is therefore given by:

\[
L = \frac{\theta q(\theta)N}{\theta q(\theta) + s}, \tag{5}
\]

which depends positively on labour market tightness \((\theta)\).

1.2 Firms' optimisation decision:

Firms post vacancies that get filled with the endogenous probability \(q(\theta)\). Let \(\gamma\) be the (per unit of time) cost of posting a vacancy and \(V\) its value while unfilled. We assume

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\(^6\) We choose a “one firm-one vacancy” setting. This is not the best framework to study the substitution between labour and capital. This choice is made because capital-labour substitution has already been extensively
that, when posting a job vacancy, firms do not know whether the demand for their product will be high or not. They know however that the product demand follows a uniform distribution over the interval \([y_1, y_m]\). Then, the value of an unfilled vacancy can only be written in terms of the expected value from a filled job \((J^e)\):

\[
rV = -\gamma + q(\theta)(J^e - V)
\]

When a firm meets a worker the timing is as follows. First, the wage is bargained between the two agents. Second, the firm’s product demand is drawn from the above distribution. Finally, taking into account this information, the firm and the worker decide whether to prolong the legal working time \((\overline{t})\) through extra-hours \((h^+_j)\) or to reduce it by \(h^-_j\) hours. The expression for the expected discounted earnings of the firm is:

\[
rJ_j = G(h_j)y_j - \overline{w}h - \lambda wh^+_j + wh^-_j + s(V - J_j).
\]

\(G(h_j)\) is the amount of the good produced, as a function of the total number of hours \(h_j\) with \(G'(.) > 0, G''(.) < 0\), \(w\) is the negotiated hourly wage and \(\lambda > 1\) is the overtime premium. With exogenous probability \(sd\) a separation occurs and a capital loss of \((V - J_j)\) is borne by the firm.

Firms are assumed to post vacancies up to the point where the expected income from posting a further vacancy is zero \((V = 0)\). Then, from (7):

\[
J^e = \frac{\gamma}{q(\theta)}
\]

stating that in equilibrium, the expected income from a filled vacancy must equal the total costs of posting it.

1.3 The employment and unemployment income of workers:

Let \(U\) be the expected discounted flow of income when unemployed and \(E^e\) the corresponding value if the individual is employed. In a stationary environment:

\[
rU = \theta q(\theta)(E^e - U)
\]

the value of being unemployed is given by the product of the probability of finding a job and the capital gain associated with it. Once a worker meets a firm, her value from being employed \((E_j)\) will depend on the strength of the demand of the output produced by that particular firm:

studied in work-sharing models [see for example Calmfors(1995)] and we want to concentrate here on efficiency issues with heterogeneity in demand.
\[ rE_j = w\bar{h} + \lambda wh_j^+ - wh^-_j - u(h_j) + s(U - E_j) . \] (10)

The first term of the RHS, \( w\bar{h} \), is common to all firms, and corresponds to the wage income associated to the legal working time. If the demand for the product of the particular firm is “high enough”, the firm and the worker may agree upon prolonging the working time by \( h_j^+ \) extra-hours, and therefore the individual receives \( \lambda wh_j^+ \). If the demand is “low enough”, they may agree to cut the working time by \( h_j^- \) hours, and the worker’s income is reduced by \( wh_j^- \).

The third term corresponds to the disutility of work, with \( u'(\cdot) > 0, \lambda > 0 \). Finally, when a separation occurs, the worker bears a capital loss of \( U - E_j \).

1.4. Wage setting :

Wages are assumed to be the outcome of bilateral Nash bargain between each individual firm and worker. The worker receives an expected income equal to \( E^e \) when an agreement is reached. Her ”threat point” is \( U \). The expected income of the firm when the match occurs is \( J^e \) and its threat point \( V \). \( w \) is then the solution to:

\[ \max_w (E^e - U)^\beta (J^e - V)^{1-\beta} \] (N)

where \( \beta \) is the worker’s bargaining power. The wage solving this problem is (see appendix 1):

\[ w\bar{h} + \lambda wE(h_j^+) - wE(h_j^-) = \beta E[G(h_j)y_j] + (1 - \beta)E[u(h_j)] + \bar{\beta} \gamma \theta \] (11)

As usual in these models, the wage depends positively on labour market tightness \( \theta \): the worker gets a larger part of the surplus whenever meeting alternative firms is easier.

1.5 Equilibrium distribution of hours :

Once the information about the strength of the demand of the product sold by the firm is known, the firm and the worker decide whether to keep the working time equal to the legal workweek \( (\bar{h}) \), prolong it through overtime \( (h_j^+) \) or reduce it by \( h_j^- \). We will assume for simplicity that the firm has all the bargaining power, so that it chooses its optimal \( h_j^+ \) and \( h_j^- \) under the constraint that the individual prefers the resulting working time to the legal workweek.
Concerning overtime, the firm maximises the difference between the value of employing the individual with and without overtime under the constraints that this improves the situation of both agents. Using (7) and (10), this can be written:

\[
\max_{h_j^+} G(\bar{h} + h_j^+) y_j - G(\bar{h}) y_j - \lambda w h_j^+
\]

s.t.
\[
\begin{align*}
\lambda w & \geq u'(\bar{h} + h_j^+) \\
0 & \leq h_j^+ 
\end{align*}
\]

(O1)

The first constraint indicates that the individual will be willing to work during \( h_j^+ \) overtime hours only if the wage of the marginal hour exceeds the marginal disutility of work. We will study situations in which the first inequality is verified \( ex \ post \). The FOC of the problem are:

\[
\begin{align*}
h_j^+ &= 0 \text{ if } y_j \leq y^* \text{ where } y^*/G'(\bar{h}) = \lambda w \\
h_j^+ / G'(\bar{h} + h_j^+) y_j &= \lambda w \text{ if } y_j > y^*
\end{align*}
\]

(12)

It is easy to check that overtime depends positively on \( y_j \). Indeed, differentiating (12b),

\[
\frac{dh_j^+}{dy_j} = \frac{-G'(\bar{h} + h_j^+)}{G''(\bar{h} + h_j^+) y_j} > 0
\]

Analogously, after the realisation of the demand level, some firms may be interested in proposing to their employees to work less than \( \bar{h} \) hours.

\[
\max_{h_j^-} G(\bar{h} - h_j^-) y_j - G(\bar{h}) y_j + wh_j^-
\]

s.t.
\[
\begin{align*}
w & \leq u'(\bar{h} - h_j^-) \\
0 & \leq h_j^-
\end{align*}
\]

(O2)

Again, we will study situations in which the first constraint is verified \( ex \ post \). The FOC are:

\[
\begin{align*}
h_j^- &= 0 \text{ if } y_j \geq \bar{y} \text{ where } \bar{y}/G'(\bar{h}) = w \\
h_j^- / G'(\bar{h} - h_j^-) y_j &= w \text{ if } y_j < \bar{y}
\end{align*}
\]
Fig. 1 represents the equilibrium distribution of hours in a case where the high-demand firms are in an overtime regime and the lower-demand ones prefer their employees to work less than full-time\(^7\).

\[ \begin{align*}
&\begin{array}{c}
h_j \\
\h + h^*_m \\
\h \\
\h - h^*_j
\end{array}
\end{align*} \]

**Fig. 1**: Equilibrium Distribution of Hours

1.6 Employment level:

The expected value of a filled vacancy for a firm depends on the average wage it expects to pay to its workers. Taking expectations in (7) and using \( V_i = 0 \):

\[ J^e = \frac{E[G(h + h_j)y_j] - w\bar{h} - w_0 Eh_j}{r + s} \]  

(13)

Moreover, remember that firms post vacancies up to the point where the expected value of a filled job is equal to the total cost of filling it, i.e., \( J^e = \frac{\gamma}{q(\theta)} \). Equalising these two equations and using the expression for the expected wage (11), we obtain the equation determining \( \theta \):

\[ \beta \gamma \theta + \gamma(r + s)\theta^{1/2} - (1 - \beta)(E[G(h_j)y_j] - Eu[h_j]) = 0, \]

(14)

where, for simplicity, a Cobb-Douglas matching function with parameter \( \alpha = 0.5 \) is assumed. The only positive solution to this equation is given by:

\[ \theta = \left( -\gamma(r + s) + \sqrt{\gamma^2(r + s)^2 + 4\gamma(1 - \beta)\beta\left(E[G(h_j)y_j] - Eu[h_j]\right)} \right)^2 \]

(15)

\( ^7 \) For this configuration to arise, the equilibrium wage has to satisfy \( \frac{u'(\h - h^*_j)}{\lambda} < w < u'(\h + h^*_m) \). Of course, other cases exist (for example, a situation in which some firms choose overtime hours and no firm employs its
As the employment level depends positively on labour market tightness (see (5)) and \(\theta\) is higher the higher \(E[G(h_j)Y_j] - Eu[h_j]\), we get that the employment level depends positively on \(E[G(h_j)Y_j] - Eu[h_j]\).

2. The effects of a reduction of the legal working time: a benchmark case:

We start by studying a simplified case in which firms cannot employ workers for less than \(\bar{h}\) hours\(^8\) and the overtime wage \(w_o\) is exogenous (with \(w_o > w\)). The advantage of such a case is that we can obtain analytical solutions.

2.1 The effects on the effective number of hours in each state of demand:

A first effect of the reduction of the legal working time is an increase in the number of firms that will be in the overtime regime. Indeed, at the new shorter legal working time, the marginal productivity of labour is higher than at the previous one, implying that overtime is chosen for a smaller level of the product demand. Mathematically, differentiating the threshold value \(y^*\) defined in (12a),

\[
\frac{dy^*}{dh} = \frac{-G'(\bar{h})w_0}{G'(\bar{h})^2} > 0.
\]  

(16)

In order to make the exposition more intuitive, we will present the results in discrete terms. Let \(\bar{h}'\) be the new legal working time (\(\bar{h}' < \bar{h}\)) and \(y'\) the new corresponding demand threshold level (from (16), we know that \(y'^* < y^*\)). Fig. 2 represents the number of effective hours after a reduction in the legal working time for different levels of the strength of demand. For demand levels such that \(y_j \leq y''\), work-sharing leads to an equivalent reduction in the effective working time (since zero overtime is chosen). Those firms whose demand strength belongs to the interval \((y'^*, y')\) will chose to do extra-hours \(h^*_j\) that will partially compensate the decrease in the legal working time (i.e., \(0 < h^*_j < \bar{h} - \bar{h}'\), see appendix 2). Finally, the firms which were already in the overtime regime initially (i.e., those with demand \(y_j \geq y^*\)) keep their effective working-time unchanged. Indeed, from (12b), we get:

\[^8\text{In the simulations which are provided in this section, we check that it is optimal ex post for firms not to propose workweeks of less than \(\bar{h}\) hours.}\]
\[
\frac{dh^*_j}{dh} = -1,
\]  
(17)

implying that the increase in overtime compensates exactly for the reduction in the legal working time.

2.2 The effects on the expected number of hours:

From (12) and the uniform distribution of \( y_j \), we can derive the expected number of total hours for those firms performing overtime. It is given by (see appendix 3):

\[
E(h_j / y_j \geq y^*) = \left( \frac{1-\eta}{2-\eta} \right) \frac{h_m^{2-\eta} - \bar{h}^{2-\eta}}{h_m^{1-\eta} - \bar{h}^{1-\eta}}
\]

where we have assumed for simplicity that \( G(h_j) = \frac{h_{ij}^\eta}{\eta} \) with \( 0 < \eta < 1 \) and where \( h_m \) is the number of hours chosen by the firm with the highest demand \( y_m \) (i.e. \( G'(h_m) y_m = w_0 \)).

Proposition 1 states that a reduction in the legal working time reduces the expected effective working time for those firms in the overtime regime:

Proposition 1:

\[
\frac{\partial E(h_j / y_j \geq y^*)}{\partial h} > 0
\]

Proof: see appendix 3.
This is due to the fact that new firms enter the extra-hours regime on the left of the demand distribution. As these firms perform a number of hours below the initial legal level, this decreases $E(h_j / y_j \geq y^*)$.

Concerning the expected number of hours as a whole (i.e. including both the firms in the normal and the overtime regimes), it is given by:

$$E(h_j) = h \left( \frac{y^* - y_j}{y_m - y_j} \right) + E(h_j / y_j \geq y^*) \left( \frac{y_m - y^*}{y_m - y_j} \right)$$

The following proposition can be stated:

**Proposition 2:**

A shorter legal working time leads to a reduction in the expected number of effective hours of work, i.e., $\frac{\partial E(h_j)}{\partial h} > 0$.

Proof: see appendix 3

2.3 *Expected value of production and expected disutility of work*:

Proposition 3 shows that work-sharing leads to a reduction of both the expected value of production $E[G(h_j) y_j]$ and the expected disutility of work $E[u(h_j)]$. Intuitively, this comes from the reduction of the effective number of hours.

**Proposition 3:**

(i) $\frac{\partial E[G(h_j) y_j]}{\partial h} > 0$

(ii) $\frac{\partial E[u(h_j)]}{\partial h} > 0$

Proof: see appendix 4

2.4 *The effects on wages*:

**Proposition 4:**

A shorter legal working time leads to a reduction in the total wage, i.e., $\frac{\partial [w h + w_0 Eh_j^*]}{\partial h} > 0$.

Proof: see appendix 5

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9 There is another effect playing in the opposite direction, but that happens to be dominated: after a reduction of the legal working time, the density associated to the upper part of the distribution decreases less than that associated to the lower part.
2.5 The effects on the employment level:

From (15), it is clear that the effects of a reduction of the legal working time on employment will depend upon the expected value of the surplus $E[G(h_j) y_j] - E[u(h_j)]$.

Proposition 5 characterises the situations under which a decrease in the legal working time leads to an increase in the employment level:

**Proposition 5:**
A decrease in the legal working time leads to an increase in the employment level if and only if $y_j < 2\mu h^{\mu-n} - w_o h^{1-n}$.

Proof: see appendix 6

The intuition for this result is as follows. If the demand for the product is sufficiently low in ‘bad times’, the existence of a legal working time $\overline{h}$ compels firms to have their employees working for an inefficiently long duration (or at least, obliges them to pay the corresponding wages). Had these firms been able to choose freely the duration of the working week, they would have preferred a duration inferior to $\overline{h}$. In other terms, the existence of a legal working week plays here the role of a (downward time) rigidity. The importance of this rigidity in the determination of the employment level depends then on the number of firms which are effectively constrained. As these firms will be situated in the left of the distribution, the rigidity will matter if the demand level of the least ‘successful’ firms ($y_j$) is ‘small’. In that case, a reduction of the legal working time alleviates these problems since firms can transfer hours from the bad to the good demand states. Then, the decrease in the expected value of production is small relative to that of the disutility of work, implying that $E[G(h_j) y_j] - E[u(h_j)]$. $\theta$ and $L$ increase. Alternatively, the condition can be understood in terms of the values of the overtime wage: if $w_o$ is high, overtime is expensive, and therefore those firms who choose to keep the same effective duration of work after the reduction in the legal working time have to bear a high cost.

2.6 Welfare:

In order to compare the situation of the individuals before and after work-sharing, we define a welfare measure $W(\theta)$ for workers, which takes into account the value of their
expected discounted income when employed and when unemployed, and the respective probabilities of each of these states. This measure is given by:

\[ W(\theta) = eE^e(\theta) + (1 - e)U(\theta), \]

where \( e \) is the employment rate. Concerning firms, as \( V = 0 \), we focus on the comparison of the value of filled vacancies \( J^e \).

We can state the following proposition:

**Proposition 6:**

\[
\frac{\partial W(\theta)}{\partial h} < 0 \iff \frac{\partial J^e}{\partial h} < 0 \iff \frac{\partial (E[G(h_j)y_j] - Eu(h_j))}{\partial h} < 0
\]

**Proof:** see appendix 7

Proposition 6 shows that the gains (or the losses) from work-sharing in this model correspond purely to changes in the efficiency of the equilibrium, i.e., to variations in the size of the cake that is to be divided between workers and firms. Take for example the case in which work-sharing enhances efficiency. The welfare of firms is higher because work-sharing enables them to match better on average the different states of demand: although satisfying the demand in ‘good times’ becomes more expensive (since overtime becomes longer), the costs of producing in bad times are lower, because firms are not any more (or at least) constrained by the existence of a legal workweek. As for workers, their expected value of being employed is higher for analogous reasons, and so are the employment rate and the value of being unemployed (since both the probability of finding a job and the value of having a job are higher).

**3. The effects of a reduction of the legal working time: generalisation:**

**3.1 Overtime wage proportional to the normal hours’ wage:**

If the overtime wage is proportional to the normal hours’ wage, the analysis of the effects of a reduction of \( \bar{h} \) becomes more intricate. Indeed, in that case, the threshold demand
level $y^*$ depends on $w^{10}$ and we get a system of equations in these two variables. We solve the model numerically and simulate the effects of a reduction of the legal workweek.

The change in the distribution of hours when the legal workweek is reduced from 39 to 35 hours is represented in Fig. 3$^{11}$. The only qualitative difference with respect to the benchmark case is that the number of effective hours chosen by the firms with the highest demand levels diminishes as $\bar{h}$ decreases. This is due to the fact that work-sharing leads to an increase of the equilibrium wage, and therefore also of the cost associated to overtime.

Fig. 3: Change in the distribution of hours following a reduction in the legal workweek (from 39 to 35) with an endogenous overtime wage

The simulations show that the conclusions on the employment and efficiency effects of work-sharing are robust to the introduction of an endogenous overtime wage. Table 1 presents an example in which work-sharing improves employment ($\theta$ increases) and both the workers and the firms are better-off (higher $W$ and $J^e$, respectively).

<table>
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<th>$\bar{h}$</th>
<th>$y^*$</th>
<th>$E(h_j)$</th>
<th>$w$</th>
<th>$E[G(h_j)]$</th>
<th>$Eu[h_j]$</th>
<th>$E[G(y)] - Eu$</th>
<th>$\theta$</th>
<th>$U$</th>
<th>$E^c$</th>
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<td>314</td>
<td>424.3</td>
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<td>353.6</td>
<td>355.3</td>
<td>355.14</td>
<td>84.09</td>
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<td>89.33</td>
<td>35.1835</td>
<td>19.26</td>
<td>713.7</td>
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<td>426.1</td>
<td>17.76</td>
<td>355.3</td>
<td>357</td>
<td>356.83</td>
<td>84.29</td>
</tr>
</tbody>
</table>

Table 1: Work-sharing leading to higher employment and efficiency (with an endogenous overtime premium)

$^{10}$ Now, $\frac{dy^*}{dh} = \frac{\lambda}{G'(h)} \cdot \frac{dw}{dh} - \frac{G''(h) \lambda w}{G'(h)^2}$, while with an exogenous overtime wage the first term was null, see (16).

$^{11}$ In this example, $\lambda = 1.18 \cdot \eta = 0.615 \cdot \mu = 1.59 \cdot \alpha = \beta = 0.5 \cdot r = 0.02 \cdot s = 0.4 \cdot \gamma = 20$. 


Table 2 presents an example with opposite effects (for $\lambda = 1.25$, $y \in [6.85]$, $\eta = 0.7$, $\mu = 1.3$, $\alpha = \beta = 0.5$, $r = 0.01$, $s = 0.02$, $\gamma = 10$).

\begin{table}[h]
\centering
\begin{tabular}{ccccccccccc}
\hline
$h$ & $y^*$ & $E(h_j)$ & $w$ & $E(G(h_j)y_j)$ & $E[d(h_j)]$ & $E(Gy) - Eu$ & $\theta$ & $U$ & $E^c$ & $W$ & $j^c$ \\
\hline
39 & 81.01 & 39.167 & 21.59 & 849.2 & 117.7 & 731.5 & 72.63 & 726.3 & 727.2 & 727.2 & 85.22 \\
38 & 81.008 & 38.163 & 21.76 & 833.9 & 113.8 & 720.1 & 71.5 & 715 & 715.8 & 715.8 & 84.55 \\
37 & 81.005 & 37.159 & 21.93 & 818.5 & 109.9 & 708.5 & 70.35 & 703.5 & 704.3 & 704.3 & 83.87 \\
36 & 81.003 & 36.155 & 22.11 & 802.9 & 106.1 & 696.8 & 69.18 & 691.8 & 692.7 & 692.7 & 83.17 \\
35 & 81 & 35.151 & 22.3 & 787.2 & 102.2 & 685 & 68 & 680.1 & 680.8 & 680.8 & 82.46 \\
\hline
\end{tabular}
\caption{Table 2: Work sharing leading to lower employment and efficiency (with an endogenous overtime premium)}
\end{table}

3.2 Possibility for firms to propose an effective workweek below $\bar{h}$ hours:

Fig. 4 presents simulations\(^{12}\) of the effects of work-sharing in the distribution of effective hours in the case where firms can employ workers for less than $\bar{h}$ hours\(^{13}\).

![Graph](image.png)

Fig. 4: Change in the distribution of hours following a reduction in the legal workweek (from 39 to 35) when firms can employ workers for less than $\bar{h}$ hours

For this more general case, we find again situations in which work-sharing decreases simultaneously employment and efficiency (see Table 3\(^{14}\)) and configurations in which the reverse is true (Table 4\(^{15}\)).

---

\(^{12}\) As the threshold level $\bar{y}$ determining which are the firms that prefer less than $\bar{h}$ hours depends on $w$, an explicit analytical solution cannot be derived.

\(^{13}\) In this example, $w_0 = 8$, $y \in [12;25]$, $\eta = 0.7$, $\mu = 1.44$, $\alpha = \beta = 0.5$, $r = 0.25$, $s = 0.25$, $\gamma = 2$.

\(^{14}\) For the parameter values of Figure 4.

\(^{15}\) For $\lambda = 1.58$, $y \in [12;27.765]$, $\eta = 0.72708$, $\mu = 1.3262$, $\alpha = \beta = 0.5$, $r = 0.01$, $s = 0.02$, $\gamma = 10$. In this case, the simulation is done for very small variations of the legal workweek, since otherwise either $w < u'(\bar{h} - h_i^*)$ or $\lambda w > u'(\bar{h} + h_m^*)$ is violated.
3.3 Complementarity between employment and overtime:

It is often argued that a work-sharing policy should be accompanied by an increase of the overtime premium. The reason for that is that the number of workers (the employment level) and overtime hours are believed to be substitutes. Indeed, for a given state of demand, ‘expensive’ overtime hours can constitute an incentive for firms to pay the fixed cost associated to employing new workers. So a cut in the working time aimed at creating new jobs should be accompanied by a high overtime premium.

This is however not the case in this model. On the one hand, Proposition 5 and 6 show that work-sharing leads ceteris paribus to higher employment levels and gains in terms of welfare only if the overtime premium \( w_0 \) is “small enough”. In other terms, according to this very simple model, reducing the overtime premium (rather than raising it) can shift the economy from a situation in which work-sharing lowers employment and welfare to a context in which it increases both of them. On the other hand, if we assume that the economy is already in a regime in which lowering \( \bar{h} \) enhances employment and welfare, lowering the overtime premium can still be a good way for getting better results. Such an example is provided in Table 3, which compares the effects of work-sharing with and without a decrease in the overtime premium. More precisely, the left-hand columns of the Table 3 reproduce the effects of the policy obtained in the economy of Table 1, while the right-hand columns (bold characters) indicated the outcome in the same economy if work-sharing is accompanied by a
reduction of the initial hourly overtime pay from $\lambda = 1.18$ to $\lambda = 1.15$. Table 3 shows that although this accompanying measure makes both the proportion of firms in the overtime regime and the total amount of (expected) hours higher, it increases labour market tightness $\theta$ and consequently the employment level. Note also that the extent to which the welfare of the different agents is enhanced by work-sharing depends on this accompanying measure: when the overtime premium is lowered, the welfare gain for each of the agents becomes bigger.

In both cases, the reason is that cheap overtime hours enable firms to satisfy at a low cost their demand for hours of work when the demand for their product is high and this in turn makes hiring a worker more profitable. In other words, employment and overtime are complements: cheap overtime improves the adaptability of firms to the demand and therefore the size of the cake to be shared between the agents.

<table>
<thead>
<tr>
<th>$\bar{h}$</th>
<th>$y_m - y^*$</th>
<th>$E(h_j)$</th>
<th>$\theta$</th>
<th>$w\bar{h} + w_iEh_j^*$</th>
<th>$U$</th>
<th>$E^e$</th>
<th>$W$</th>
<th>$J^e$</th>
</tr>
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<tbody>
<tr>
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<td>17.53</td>
<td>727</td>
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<td>352.3</td>
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</tr>
<tr>
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<td>0.083</td>
<td>38.18</td>
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<tr>
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<td>678</td>
<td>682</td>
<td>355.3</td>
<td>356.3</td>
</tr>
</tbody>
</table>

Table 3: Accompanying work-sharing with a decrease in the overtime premium

**Conclusion:**

This paper studies the employment and welfare consequences of work-sharing when account is taken of the equilibrium distribution of hours among ex-post heterogeneous firms. In this context, we identify the conditions under which the reduction of the legal workweek leads to a more (less) efficient allocation of hours among firms and therefore to higher (lower) employment and welfare levels. More precisely, the efficiency gains are more likely to arise whenever the firms at the lower end of the demand distribution face a low demand level and/or the overtime premium is small. Additionally, we show that lowering the overtime premium (rather than increasing it) could be a good accompanying measure for a work-sharing policy to be successful in employment and welfare terms.
Fig. 5: Effective Number of Weekly Hours, U.K.

Fig. 6: Effective Number of Weekly Hours, Spain
Labour Force Survey 1996
Appendix 1: wage setting

The optimality condition of problem (N) is given by:

\[(1 - \beta)(E^e - U) = \beta(J^e - V) \]  \hspace{1cm} (A1)

Using the expressions for \[U, E, V, \text{ and } J^e\] (equations (6), (7), (9) and (10)), the wage solving this problem is:

\[w = \frac{\beta \lambda \gamma \theta}{(1 - \beta) \lambda \gamma \theta + \lambda \beta \gamma \theta} \]  \hspace{1cm} (A2)

Using (8), (9) and the zero-profit condition for firms \(V_i = 0\) in (A1), we get:

\[(1 - \beta) r U = \beta \gamma \theta \]  \hspace{1cm} (A3)

Substituting (A3) in (A2):

\[w = \frac{\beta \lambda \gamma \theta}{(1 - \beta) \lambda \gamma \theta + \lambda \beta \gamma \theta} \]  \hspace{1cm} (A4)

Appendix 2:

Let \(\overline{h}\) be the legal working time after the reduction, and \(y^*\) the associated threshold level for the demand. Then, \(G^\prime(\overline{h})y^* = w_0\). Take a productivity level \(y^* + \varepsilon\) slightly above (below) the new (old) threshold level, i.e., \(y^* < y^* + \varepsilon < y^*\). Let \(\widehat{h} > 0\) the optimal number of extra-hours for this firm when the legal working time is \(\overline{h}\).

This implies that \(G^\prime(h^{\overline{y}+\varepsilon}_y)(y^* + \varepsilon) = w_0\). Assume that \(h^{\overline{y}+\varepsilon}_y \geq \overline{h} - \overline{y}\) where \(\overline{h}\) is the initial legal working time. Then \(G^\prime(\overline{h})(y^* + \varepsilon) \geq w_0\), which is a contradiction since \(G^\prime(\overline{h})y^* = w_0\) and \(y^* > y^* + \varepsilon\). Therefore, this firm reduces its total number of hours after the reduction of the legal working time \((h^{\overline{y}+\varepsilon}_y \geq \overline{h} - \overline{y})\).
Appendix 3: Hours

(i) The density distribution of $y_j$ conditional on $y_j \geq y^*$ is given by $f(y_j) = \frac{1}{y_m - y}$. From the FOC (12), $y_j = w_0 h_j^{1-\eta}$.

(ii) Proof of Proposition 1: After some computations, it can be shown that the sign of $\frac{\partial E(h_j|y_j \geq y^*)}{\partial h}$ is that of $h^{2-\eta} + h_m^{1-\eta}[(1-\eta)h_m - (2-\eta)\bar{h}]$ or equivalently that of $1 + (1-\eta)\left(\frac{h_m}{\bar{h}}\right)^{2-\eta} - (2-\eta)\left(\frac{h_m}{\bar{h}}\right)^{1-\eta}$. This term is strictly positive for every $\frac{h_m}{\bar{h}} > 1$ and every $\eta \in (0,1]$ (being null for $\frac{h_m}{\bar{h}} = 1$, i.e. when no firm is in the extra-hour regime).

(iii) Proof of Proposition 2: After some simplifications, the expected number of hours as a whole is given by $E(h_j) = \frac{1}{y_m - y_j} \left( \frac{\omega_0 \bar{h}^{1-\eta}}{2-\eta} - \bar{h} y_j + \frac{1-\eta}{2-\eta} y_m^{1-\eta} \omega_0^{1-\eta} \right)$. Then, $\frac{\partial E(h_j)}{\partial \bar{h}} = \frac{y^*-y_j}{y_m - y_j} > 0$.

Appendix 4: Proof of Proposition 3

(i) $E[G(h_j)y_j] = \frac{q^* + q_j}{2} \left( \frac{y^*-y_j}{y_m - y_j} \right) + E[G(h_j)y_j|y_j \geq y^*] \left( \frac{y_m - y^*}{y_m - y_j} \right)$, where $G(h_j)y_j \equiv q_j$. The density distribution of $G(h_j)y_j$ conditional on $y_j \geq y^*$ can be obtained analogously to Appendix 3. Indeed, using the FOC, $y_j = q_j^{1-\eta} h_j^{1-\eta} w_0 \eta$. Then, $f(q_j) = \frac{(1-\eta)q_j^{-\eta}}{q_m^{1-\eta} - q_j^{1-\eta}}$ where $q_m = G(h_m)y_m$ and $\bar{q} = G(\bar{h})y^*$. The corresponding conditional expectation is: $E[G(h_j)y_j|y_j \geq y^*] = \frac{1-\eta}{2-\eta} \frac{q_m^{2-\eta} - q^{2-\eta}}{q_m^{1-\eta} - q^{1-\eta}}$. Simplifying, we get:

\[ \frac{\partial E[G(h_j)y_j]}{\partial \bar{h}} = \frac{1}{2(h^{1-\eta}(y_m - y_j))} \left( y^2 - y_j^2 \right) > 0. \]

(ii) $E[u(h_j)] = u(\bar{h}) \left( \frac{y^*-y_j}{y_m - y_j} \right) + E[u(h_j)|y_j \geq y^*] \left( \frac{y_m - y^*}{y_m - y_j} \right)$. Assuming that $u(h_j) = h_j^{\mu}$ with $\mu > 1$,

\[ f[u(h_j)] = \frac{1-\eta}{\mu} \frac{u(h_j)^{1-\eta} - u(h_j)^{l-\eta}}{u(h_m)^{1-\eta} - \bar{u}(\bar{h})^{l-\eta}} \]

is the density distribution of the disutility of work. Then,

\[ E[u(h_j)|y_j \geq y^*] = \frac{1-\eta}{1-\eta + \mu} \frac{u(h_{\mu}^{1-\eta}) - u(h_j^{1-\eta})}{u(h_{\mu}^{1-\eta}) - u(h_j^{1-\eta})}. \]

Simplifying the expression for the expected disutility of work, we get

\[ E[u] = \frac{1}{(y_m - y_j)(l-\eta + \mu)} \left[ \omega_0 h^{1+\eta-\eta} - (1-\eta + \mu)y_j h^{\mu} + (1-\eta)y_m \omega_0^{l-\eta} \right]. \]

Derivating and simplifying, $\frac{\partial E[u(h_j)]}{\partial \bar{h}} = \frac{\mu(y^*-y_j)}{(y_m - y_j) h^{l+\eta}} > 0$. 

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Appendix 5: wages

The sign of \( \frac{\partial[w\bar{h} + w_0 E h^*_j]}{\partial h} \) is that of \( \frac{\partial[E(Gy)]}{\partial h} \)

\[
\frac{\partial[E(Gy)]}{\partial h} \left[ \beta(1 - \beta^2)(E(Gy) - Eu) \right] \text{ wh ere } B \equiv 1 + 4\gamma^{-1} (r + s)^2 (1 - \beta) e[E(Gy) - Eu] > 1. \text{ This expression is positive since } \frac{\partial[E(Gy)]}{\partial h} > 0, \frac{\partial[Eu]}{\partial h} > 0, \text{ and } B^{1/2} > 1 \text{ and } J^e > 0 \Rightarrow E[G(h_j)y_j] - Eu(h_j) > 0.
\]

Appendix 6: Proof of Proposition 5

Using the expansions for \( \frac{\partial[E(G(h_j)y_j)]}{\partial h} \) and \( \frac{\partial[E[u(h_j)]]}{\partial h} \) in the appendix 4,

\[
\frac{\partial[E(G(h_j)y_j)]}{\partial h} - \frac{\partial[E[u(h_j)]]}{\partial h} = \frac{y^* - y_i}{2(y_m - y_i)h^{1-\eta}} \left( w_{0i}h^{1-\eta} + y_i - 2\mu h^{\mu-\eta} \right).
\]

As \( \frac{y^* - y_i}{2(y_m - y_i)h^{1-\eta}} > 0, \frac{\partial[E(G(h_j)y_j)]}{\partial h} - \frac{\partial[E[u(h_j)]]}{\partial h} > 0 \iff w_{0i}h^{1-\eta} + y_i - 2\mu h^{\mu-\eta} > 0. \)

Appendix 7: proof of proposition 6

From (A1), using \( V_i = 0 \) and substituting \( J^e \) and \( E^e - U \) by (respectively) their expressions in (13) and (9), we get:

\[
r_U = \frac{\bar{\beta}(y - w\bar{h} - w_0 E h^*_j)\partial q(\theta)}{(r + s)(1 - \beta)}. \tag{A5}
\]

Substituting (A5) in (A2), we get the expression of the expected wage as a function of labour market tightness:

\[
w\bar{h} + w_0 E h^*_j = \frac{\beta E[G(h_j)y_j](r + s + \theta q(\theta))}{r + s + \beta q(\theta)} \frac{(1 - \beta)(r + s)Eu(h_j)}{r + s + \beta q(\theta)}. \tag{A6}
\]

Substituting (A6) in (A5):

\[
r_U = \frac{\bar{\beta}(E[G(h_j)y_j] - Eu(h_j))\partial q(\theta)}{r + s + \beta q(\theta)}. \tag{A7}
\]

Substituting the expression for \( \theta \) (15), we get \( r_U(\theta) = -\frac{A + A\sqrt{B}}{1 + \sqrt{B}} \) where \( A \equiv E[G(h_j)y_j] - Eu(h_j) \). Then, the sign of \( \frac{\partial r_U}{\partial h} \) is that of \( \frac{\partial A}{\partial h} \)

\[
\left( 4\gamma^{-1}(r + s)^2(1 - \beta)B \right) \left( 1 + B^{-1/2} \right) A > 0, \quad \frac{\partial U(\theta)}{\partial h} < 0 \iff \frac{\partial A}{\partial h} = \frac{\partial \left( E[G(h_j)y_j] - Eu(h_j) \right)}{\partial h} < 0. \text{ From } (9),
\]

\[
E^e = \frac{U[r + \theta q(\theta)]}{\theta q(\theta)}. \text{ Using (A7) and simplifying, } rE^e = \frac{\beta(E[G(h_j)y_j] - Eu(h_j))}{r + s + \beta q(\theta)} \left[ r + s + \beta q(\theta) \right]. \text{ It is then easy to show that the sign of } \frac{\partial E^e}{\partial h} \text{ is that of } \frac{\partial A}{\partial h} \left[ r + s + \beta q(\theta) \right] \frac{\partial q(\theta)}{\partial h} A[r + s + (1 - \beta)r]. \text{ As on the one}
\]
hand $A[ s + (1 - \beta) r ] > 0$ and $[ r + \theta q(\theta)][ r + s + \beta \theta q(\theta)] > 0$ , and on the other hand $\frac{\partial A}{\partial h} < 0 \iff \frac{\partial \theta q(\theta)}{\partial h} < 0$ , then $\frac{\partial E^e}{\partial h} < 0 \iff \frac{\partial}{\partial h} (E(G(h_j) y_j) - E(u(h_j))) < 0$ . From (5), the employment rate is $e = \frac{L}{N} = \frac{\theta q(\theta)}{\theta q(\theta) + s}$ . Then, $\frac{\partial e}{\partial h} = \frac{\partial e}{\partial \theta} \cdot \frac{\partial \theta}{\partial h} > 0$ . Remember that $W = e \cdot E^e + (1 - e)U$ . As $\frac{\partial E^e(\theta)}{\partial h} < 0 \iff \frac{\partial U(\theta)}{\partial h} < 0 \iff \frac{\partial}{\partial h} (E(G(h_j) y_j) - E(u(h_j))) < 0$, $\frac{\partial e}{\partial h} > 0$ and $E^e > U$ , $\frac{\partial W}{\partial h} < 0 \iff \frac{\partial}{\partial h} (E(G(h_j) y_j) - E(u(h_j))) < 0$ . As for firms, $\Box$ and therefore

Appendix 8: The reduction of the legal working time in France (1998 and 1999)

(i) The first law (May 1998):

*Time-schedule for the reduction of the legal workweek from 39 to 35 hours: January 1st 2000 for firms over 20 employees, January 1st 2002 for firms below 20 employees.

*Financial aid: those firms agreeing with unions (before January 2000) a reduction of at least 10% of their effective working time and hiring workers representing more than 6% of their total number of employees receive from the State 9000 FF per employee in 1998, and a smaller amount in the following years (starting from the fifth year after the agreement, the amount is of 5000 FF yearly and for an unlimited period of time). The same financial transfer is received by those firms declared to be in a situation of crisis (“Plan social”) which choose not to fire workers (again 6% of them) while engaging in a reduction of the effective working time of at least 10%. Those firms reducing its effective working time over 15% and hiring over 9% of employees receive higher amounts (13 000 FF per employee the first year).

*Overtime: the maximum amount of overtime hours remains equal to 130 hours per year. The employee receives the right to “recover” (through rest hours) 50% of each of the hours over 41 effective working hours (previously, 42).

*Part-time employees can work up to 32 hours per week. The social contributions paid by firms are reduced by 30% for those contracts stipulating a number of hours between 18 and 32 (before, 16 and 32).

(ii) Results of the first law according to the government (by September 99):

*By end of August 1999, 15,000 agreements of work sharing (representing 27.8% of the wage employees) had been signed.

*According to the government, the net effect on employment should be of 105,000 jobs (created or kept).

*This estimation does not seem robust. It is based on a comparison of firms having signed work-sharing agreements with firms which have not and display similar characteristics (number of employees, branch...). It does not take into account the good economic context (how many jobs would have been created without work-sharing) and more importantly does not identify the effect due to the reduction of social contributions paid by the firms and that (potentially) due to work-sharing itself. (see Piketty, 1999).

(iii) The second law (December 1999)

*For firms over 20 employees, the legal working time is reduced from 39 to 35 weekly hours on January 1st 2000.

(a) Firms having signed a work-sharing agreement (or implementing a branch agreement)

- receive a financial aid of 4000 FF per employee and per year (unlimited in time).

- benefit from an additional reduction in the social contributions for low-wage workers.
-in 2000, the maximum number of extra-hours (not giving rise to the right of a “compensating rest”) remains equal to 130 hours. The overtime premia are fixed in the following way : 10 % from the 36th to the 39th hour (instead of 25 %), 25% from the 40th to the 43rd hour, 50 % above. In 2001, the overtime premium becomes also of 25 % for hours from the 36th to the 39th.

-in firms in which the number of hours is computed on an annual basis, the maximum number of hours is fixed to 1600, with overtime hours limited to 90 (in January 2000, the Constitutional Court has established that firms can in some cases exceed 1600 hours per year, without these hours being considered overtime hours).

(b)firms not having signed a work-sharing agreement:
- in 2000 the maximum number of overtime hours is of 130 hours, but counted only starting from the 38th hour. In 2001, it is counted from the 37th hour and in 2002 from the 36th hour.
- in 2000, the overtime premium for the hours between the 36th and the 39th is fixed at 10 %. It is paid to the State, and not to the employee, in order to finance work-sharing (together with green taxes and taxes on tobacco). In 2001, an overtime premium of 25 % has to be paid (10% to the State, 15 % to the employee). In January 2000, the payment of this 10% to the State has been declared to be against the Constitution by the Constitutional Court.
- firms who have not decided to reduce the effective working time do not receive the financial aid (see above) and do not benefit from a further reduction in the social contributions.
- In 2002, the maximum number of overtime hours (130) is accounted starting from the 36th hour.

*firms below 20 employees have to fulfil in 2002 the same conditions as those below 20 employees in 2000 (the conditions in 2003 are those for the other firms in 2001).

*the minimum wage is in principle calculated on an hourly basis. However, during the transition, its initial total value for 39 hours will be kept for 35 hours. In the future, this should be compensated by reducing its growth.

*Higher Flexibility in the organisation of working time : the reduction in the working time can be distributed irregularly throughout the year if a collective agreement of this type is signed. The « annualised » standard duration should correspond at most to 35 week-equivalent hours. These agreements should respect the maximum amounts of per day, per week and per year hours of work (per year terms, the ceiling is of 1600 hours). The working time reduction can also be performed through days of rest (or half-days of rest).

*change in the part-time contracts legislation : part-time work contracts specify a duration smaller than the legal duration (formerly, the condition was that the person should have a normal number of hours smaller to at least 1/10 the full-time duration). There exists a maximum number of extra-hours (« complementary » hours) for part-time workers (1/10 of the weekly or monthly duration established in the contract). These hours are paid at the normal rate. Hours above this threshold (overtime hours) have a 25% premium.

References :


