



The Provisions in a Labour Contract: Technology and the Market

*Christian Bessy (IDHE CNRS – France) &
Daniel Szpiro (University of Lille 1 & Clersé– France)*

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Abstract

Many common features of the legal regulation of the employment relationship have attracted little attention, although they are to be found in contracts with possible litigation, as for instance the possibility for the employer to reduce the mobility of the employee or to prevent them from retaining certain intangible assets. The aim of this paper is to provide some insights into the actual drafting of individual labour contracts, starting with a quantitative description of the usage of contracts in France, and then going further with some explanations of why some provisions exist and in which cases they are expected to be found.

The main empirical result is that factors related to the technology of job cannot be considered as the only causes of the specificity of a contract. In many cases, the bargaining process is relevant and is sensitive to the state of the micro labour market.

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INTRODUCTION

The analysis of the employment relationship has focused lately on the cost of dismissals, and as a consequence, on the development of specified-term or temporary contractsⁱ, leaving uncharted other characteristics of contracts. Many clauses on work flexibility or professional mobility, covenants not to compete, or provisions to grant back intellectual property rights, increase the management power of employers while reducing the freedom of workers. The legal literature testifies these clauses can end in disputes, but Supiot (1999) wonders if the analyses conducted by lawyers, which are based on individual cases, reflect a new trend in labour relations toward flexibility and risk taking for the employee, or whether these features are only epiphenomena.

The reason for the contract provisions is often couched within an interpretation involving the technology of production. Many covenants are supposed to be “natural” consequences of the way production is organised nowadays. For instance, flexibility is linked to the just-in-time production process. But can technology alone explain these new features of labour contracts? Can technology, as it is set up by firms, be thought of as independent from other economic factors? Or does the bargaining power of both the employer and the employee play a significant role in the implementation of new technology?

The present analysis is a first step to address empirically the determinants of the content of labour contracts. The paper presents some insight into the characteristics of individual contracts, with a quantitative description of provisions found in the French case, based on an original database of 308 detailed contracts signed during the period 1997-2004. We then offer some explanations as to why some provisions exist, and in which cases they are expected to be found. The empirical assessment of the determinants of labour provisions takes into account some structural explanations related to technology and also to economic factors related to bargaining in a context of high unemployment, which can lead to clauses less favourable to the employee. According to our knowledge, only special case studies exist in the literature and no analysis based on an employment contract dataset has been carried out previously (at most, Brown et al. 1998 base their study on only 32 British firms with a scope centred on firms that have derecognised trade unions, rather than the more general question of provisions in labour contracts).

The paper is organized as follows. The first section presents the economic theories about the rationale for the diversity in labour contracts. Section 2 describes the main facets of French employment law and industrial relations system, presents the database, and examines the actual characteristics of contracts. The diversity of provisions in contracts is then summarized by a hierarchical ascending classification technique that leads to four broad categories: *i*) the minimal contract with few provisions, *ii*) contracts with a strong subordination of the employee, *iii*) contracts mainly aimed at settling a performance wage, and *iv*) contracts with a special emphasis on the protection of intangible assets. Section 3 examines empirically the determinants of the choice between these types of contracts,

through a multinomial regression that includes the characteristics of jobs and firms, and some proxies for the relative bargaining power of each party. Our findings suggest that production technology alone cannot account for the choice of provisions; some economic mechanism related to the bargaining power of the parties also plays a role.

THE THEORITICAL HYPOTHESES

The analysis of contractual choices has been the subject of a vast economic literature over the past three decades (Masten, 1999). Part of the literature emphasizes the incomplete nature of contracts, due to the parties' inability to foresee all possible contingencies and the high cost of court action. Elsewhere in this literature, the cost of devising a contract is weighed against the advantages of a lock-in device for the firm that enhances investment and prevents the risk of a hold up, in particular by the employee. But beyond this literature, the labour-management dimension should not be ignored: risk sharing, flexibility, control, and incentives are features of any employment relation and will be reflected in the contract itself. There is no comprehensive theory of the employment contract, only partial mechanisms have been clarified in the literature as described below.

COMPLETENESS, MENU COSTS, AND THE SPAN OF A RELATION

When drafting a contract with its list of rules, duties and obligations of each party, it would be too costly to imagine and specify every contingency. This is particularly the case for an employment contract that is expected to last for some time, since many unforeseen changes in the environment or the production process will have to be faced by the firm. Of course, some stipulations must be mentioned by virtue of the law or of collective agreements, but many contracts go beyond the minimum scope in order to be customised for a specific relationship. The nature of what is decided to be stipulated is an open question, but the degree of completeness of a contract should depend on several parameters.

The neo-institutional literature highlights the importance of transaction costs (Williamson, 1985), in particular the cost of writing the desired provisions and the knowledge and ability to make a contract compatible with the existing law in order to avoid litigations. This 'menu' cost is to be balanced against the gain expected to be generated by the provisions, which depends on the nature of the job or the industry.

This menu cost is partly a fixed cost, an investment that can be reused in several instances for the same kind of position to be filled. One expects to find a higher degree of completeness of contracts in big firms, where the initial cost can be recovered through multiple uses. However, when the stake is large enough, small firms will be ready to externalise at a cost the design of a contract.

Another property stemming from the fixed cost hypothesis is that when the objective is to maintain a long-term relationship, writing a complete contract is of little use when working conditions are to adjust to new economic or technological conditions (Goldberg, 1976; MacNeil, 1978). In that case, the

agreement between the parties should not be based on a detailed specification of obligations, but on a general framework defining the process of adjustment of the terms of the agreement over time, i.e. a set of constituent rules framing future interactions and renegotiations. According to this theory, a high degree of completeness in contracts can only apply to a short-term relationship, when there is no time for renegotiating the provisions.

From an empirical point of view, the notion of completeness cannot be assessed on its full meaning. The number of provisions is not necessarily a good indicator of the degree of completeness, since some of the arrangements mentioned in a contract can be purely informative. It is thus more appropriate to distinguish coarsely between two categories, a 'minimal contract' vs. a 'sophisticated contract', according to the legal repercussions of the content rather than the number of clauses mentioned. Considering the available data, the testable elements of the theory of transaction costs lead to the following hypothesis:

H1: A 'sophisticated contract' requires some investment in extended human resource management tools to be found mainly in large firms and for short-term contracts.

INVESTMENT AND EMPLOYMENT CONTRACTING

Many employment relationships are bundled with an investment: training, on-the-job skill acquisition, information transmission, and turn-over cost -whether it is for the selection and employment process, or for the firing of an employee -. These features constitute an asset that benefits both the employee and the firm. As a consequence, there is a wedge between the pay an employee is willing to accept and the maximum wage the employer can afford in order to avoid losing the investment sunk in the employee. Both sides of the contract can pursue some strategy in order to appropriate the quasi-rent linked to the continuation of the employment contract. The employee can strategically accept a contract with an initial low wage, wait for the building up of the investment, and then renegotiate and ask for a higher wage by threatening to quit the firm that has irrevocably incurred the investment cost. The firm will be willing to oblige if the inter-temporal increase in wages is lower than the investment cost. Hence, the employee can successfully bargain and hold-up the investment by demanding a higher payment after the initial contract and the investment are carried out (Williamson, 1985).

For the firm, one strategy to counter this problem is to have a sufficient duration of the employment relationship that excludes the possibility for re-bargaining. This allows the cost of the asset to be over many periods and to pay for itself. Another strategy is to write a contract with provisions to recover the cost of the investment if the employment relation is terminated (Malcomson, 1997). For instance, in the case of an investment in non-specific human capital that is not paid for by the worker (a possibility Becker, 1964 dismisses as not rational when only simple contracts are allowed), some restrictions to the mobility of the workforce are to be imposed, e.g. a requirement not to work in the same industry during the relationship or after separating from the firm, or other kind of covenants not

to compete. Where feasible, the surrender of intellectual property right or of clientele is a way to focus the contract on the prevention of a hold-up from the employee, or even to allow a hold-up behaviour by the firm (Hart, 1995). Obviously, these kinds of provisions are likely to be found where the employee works in some specific type of jobs and has a technological or commercial knowledge not appropriable by the firm. Apart from these technological characteristics, an employee can easily gather a comprehensive set of information when working in a small company. Hence the following hypothesis:

H2: The probability of a contract with an emphasis on the protection of intangible assets increases with the degree of appropriation of these assets by the employee, as proxied by the type of job and the size of the firm.

DIRECT WORK INCENTIVES

There is a distinction to be made between *indirect* and *direct* forms of incentives. The former can be a provision that makes a dismissal or a resignation more detrimental to the employee, e.g. the surrender of intangible property rights, restriction of mobility. It is a discrete device that acts as a threat to the worker, and therefore an incentive to work intensively. The direct form takes for granted the employment relation is ongoing and effort is promoted thanks to an incentive scheme over a continuum of levels. Performance pay can be an effective device if several conditions are met. The first one is that it should generate little adverse effect on the productivity of other workers; It should not preclude cooperation where needed, and it should not be detrimental to the productivity of the fellow workers or generate some “destructive competition”- as for instance when the incentives are considered unfair by a majority of workers. A second condition relates to the nature and the extent of the asymmetry of information between the management and the employee: the implementation of an incentive scheme needs the performance to be measured at a reasonable cost, and the criteria leading to an increase in pay should not be prone to a manipulation by the employee. That is more likely to happen in large firms, since the complexity of the required information system is partly a sunk cost. By contrast, in a small firm, the management can put a direct pressure on the effort of the worker, and there is less need of an explicit provision in the labour contract. Hence, the hypothesis:

H3: A contract with an incentive scheme is more likely in large firms, and applies only for some kinds of occupations.

TECHNOLOGY RATHER THAN NEGOTIATION?

The production process links output to capital and labour inputs in an optimal way that determines the organisation of work conditions, with possible implications for the labour contract. The conventional wisdom is that recent technological change needs more versatility in its operation. Also, there is an increase in capital intensity that demands less low-skilled operating labour and an increase in

maintenance and repair work. And the development of information technology substitutes routine work with capital (Autor D, Levy F & Murnane R, 2003) that requires more prompt availability of the specialised employee. The present trend of just-in-time production and holding lean inventories at every stage of the production process in some industries can be viewed as a result of a technological change that needs a high degree of flexibility (Brown et al, 1998, for instance mention that reason as one cause for the individualisation of contracts). But technology may not be the only determinant of economic decisions. The theory of negotiation usually pertains to wage bargaining for the sake of simplicity, but wage can be considered in the same way as a hedonic price, where the characteristics of the job enter as components of work quality. This perspective is consistent with the neoclassical theory of labour supply and its emphasis on utility maximisation under constraints, which is not limited to the wage *per se* but also takes into account the disutility of work. The scope of bargaining should cover more attributes of the employment relationship than the wage and the number of hours worked. Labour bargaining is to be considered as a bundle of negotiations about both the characteristics of a job and its price. The outcome of a negotiation depends on the bargaining power of each side in the Nash equilibrium, as well as on several other factors:

- the elasticity of the employer profit with regard to working conditions (see for instance the arguments on flexibility developed above), which is expected to vary across industries and depends on production technology,
- the “tastes” of workers in regards to the job attributes,
- the alternative possibilities available to the job seeker, usually represented globally through the proxy of the unemployment rate or the vacancy ratio,
- the degree of organisation of workers, which depends on the presence of trade unions or employee representatives.

In summary, technology and bargaining are competing (but not exclusive) hypotheses pertaining to work organisation, including the use of provisions concerning flexibility, or work control leading to a strong subordination of the employee to the employer. The ‘technology push’ and ‘bargaining power’ factors give rise to the following hypotheses:

H4: A strong subordination type of contract as well as provisions protecting the firm’s intangible assets are likely to be found in firms which are in a powerful bargaining position versus merely having a production technology characterised by specific jobs or in firms where flexibility or secrecy is needed.

Before assessing the empirical validity of these hypotheses, the next section presents the French labour contracts in their legal framework and describes the database.

THE MAIN FEATURES OF FRENCH LABOUR CONTRACTS

This section begins by presenting succinctly the principles at the heart of the French labour law and industrial relations system. Next, the database of contracts is described with a short assessment of the main clauses. Finally, a labour contract typology is proposed in order to sort the multiple pieces of information in contracts into a few collapsed dimensions. Although we must accept less precision with a typology leading to broad categories, this is a way to lessen the arbitrary decisions that otherwise would have been made when selecting some “interesting” provisions to be studied. The aim is to have a rather exhaustive image of what is found in French contracts. Therefore, we sacrifice some legal details for the sake of a comprehensive empirical analysis.

THE LEGAL BACKGROUND OF FRENCH EMPLOYMENT CONTRACT

The scope of an individual contract is circumscribed by the protective role of laws and collective labour agreements. These characteristics are probably more marked in the case of France, compared to the UK for instanceⁱⁱ, due to the weight of state intervention and the regulation of the labour market. A French specificity of collective bargaining is the possibility for the state to declare the agreement valid to every firm in the sector, even to those that have not signed the industry-wide agreement. As a result, nearly all French employees are covered by a collective agreement. Beyond the differences in the judicial peculiarities, French labour law was initially constructed in opposition to the civil code. In a standard contract, each party enjoys a degree of freedom, as inherited from the French civil code in which the rental of services is referred to, and which entails the prior concept of equality of the parties. It is in this respect that we can refer to a market model in labour relations, where the continuity of the relationship is not necessarily its objective, albeit it is often one of its characteristics. However, due to the widely perceived *de facto* inequality between the parties in the domain of employment relationships, legislation (at the turn of the 19th and 20th centuries) has been introduced to protect the worker. The model that has inspired the definition of the employment contract based on subordination is the relationship of authority described by Williamson (1985) and modelled by Simon (1951).

In contrast to Anglo-Saxon countries, the employer’s ability to define the employment conditions has been counterbalanced in France by a strong protection of the employee with respect to a breach of the contract, especially in case of collective dismissals. This protection, first gained by way of collective bargaining, was reinforced by a state intervention at the end of the 1960s and the beginning of the 1970s (although the administrative control of economic dismissal was abolished in 1986). Until recently (the late eighties), most individual employment contracts in France were interpreted by jurists as ‘passive’ agreements, in the same way as a subscription contract, *i.e.* without any negotiation by the buyerⁱⁱⁱ and employment relationships negotiated by both parties were deemed exceptions. This conception of the employment contract evolved in France reflecting the impact of at least two factors. First, European community law and, in particular, the directive of 14 October 1991 relative to the employer's obligation to inform the employee of the conditions applicable to the employment contract

or relationship provides a better protection for employees by granting them the right to individual information. This obligation leads to a greater transparency of the labour market, since the individual can compare more adequately jobs when applying to several firms. Second, the implementation of the law on reduction in working time in the late 1990s led to collective negotiation, and often as a result, to formalized amendments to the employment contract. Last, there was a change in judicial precedents in the late eighties and early nineties concerning amendments to the employment contract. The employer's power is now limited insofar as any amendment to an essential element in the employment contract has to be explicitly approved by the employee (Waquet, 1999). Four 'essential elements' are to be taken into account: the amount and the structure of remuneration, the duration of work, the workplace, and the job content. Aiming to protect employees, legal precedents reaffirm the commitment of the contract, in an economic configuration nonetheless marked by a strong demand for flexibility in the employment relationship.

This new legal rationale leads to a contract lasting either until there is a mutual agreement to modify terms or until the contract is properly terminated (a major difference with the US regime of *employment at will*, which does not require any renegotiation). In order to acquire some freedom of action, the French employers have sought to introduce explicit clauses of flexibility, thus making individual dismissal easier if the employee refuses their application. The litigations caused by these clauses have then led the Labour Division of the High Court to limit them by opposing the principle of respect for individual liberties, beyond the fact that such restrictions must be in proportion to the objective and justified. For instance, clauses concerning geographic mobility have to be consistent with the efficient functioning of the firm and respect the constraints of the employee's personal life to some degree.

Since the end of the 1990s, the legal precedents have constrained this kind of clauses to be written as well as others, like covenants not to compete, forfeit for training clauses, performance clauses or some features of intellectual property rights, even if these clauses are already codified by collective agreements (Favennec-Héry, 2004). Moreover, the decentralisation of collective bargaining has favoured the contractualisation of the employment relationship at the firm level. These legal factors have resulted in more formal commitments and therefore in an increase in written contracts in recent years. (See appendix A for more precision on the French industrial relations evolution). It is an important point for our empirical study: the obligation to write these clauses in employment contracts makes them amenable to be collected in a database of contracts.

THE DATASET

The database consists of a total of 308 contracts from over 200 firms, signed in the eight years spanning from 1997 to 2004. The individual written agreement, which we call the 'contract', is a hybrid of a contractual agreement and a written statement on 'employment conditions'. However, we do not make any distinction between 'contractual' provision and more 'informational' ones (i.e. a

simple reminder of the rules defined by the employee's collective status), both intentions are considered relevant to the labour relationship. First, a coding grid is implemented in order to incorporate in a standardized way the information of each contract. (For more details on the characteristics of our database and on its representativeness, see appendix B.) Then, the large number of raw variables (mainly in a binary form except for the variable "discretion provisions"), are grouped into 11 synthetic indicators pertaining to:

- the definition of employment conditions: qualification, job content flexibility, geographic flexibility, temporal flexibility,
- the employee's subordination: work monitoring devices, prequalification of dismissal reasons,
- the protection of immaterial assets: cession of intellectual property rights and of lists of customers, restrictions to mobility, confidentiality,
- the employee's individual accountability: performance pay, individual responsibility.

A synthetic indicator is constructed by adding the values of the raw variables it is made of (see appendix B, table 5). This simple summation process is a way to proxy for the magnitude of each of these eleven synthetic indicators listed above. In some cases, raw variables with similar meaning overlap, and thus the aggregation is especially useful.

Some other variables are not used to describe the contract *per se* and relate to the characteristics of jobs (fixed-term or unlimited contract, full or part-time, hierarchical categories, kind of occupation, etc.) and firms (size, trade union presence, etc.) referred to in the contract. This kind of information will be used later to explain the choice of the contract.

A TYPOLOGY OF THE PROVISIONS IN FRENCH CONTRACTS

The most common provision (two thirds of contracts) is an obligation of discretion; vis-à-vis the knowledge of the clientele or in regards to the know-how of the firm. Then, approximately half the contracts mention provisions for geographic mobility or flexibility of work hours, which corroborates the general impression of work relations often being flexible. Other commonly specified provisions include exclusivity clauses, travel obligation, the definition of 'misconduct' leading to dismissal, or the obligation for the employee to plan holidays in advance, are to be found in one third to one half of contracts. The others clauses mentioned in table 5 in the appendix are less common.

The hierarchical ascending classification based on the synthetic variables leads to a typology of four classes; graph 4 presents the exhaustive potential classification tree which justifies the choice of no more than 4 classes (see appendix B). Table 1 below presents the signed decomposition of ρ^2 of each active variable -that is the distance between the gravity centre of classes and the centre of the cloud-

that shows the contribution of each synthetic variable to the construction of the classes. This is presented now by increasing order of class complexity.

Insert table1

Class 1: Minimal contracts

(160 contracts)

This class, which represents over half the number of contracts, is characterized by an extreme weakness of contractual guarantees by the employer, especially regarding the flexibility of working conditions. In this class, the job is usually described in terms of the qualification as defined by a collective status, and there are few mentions to standards framing the execution of work. The individualization of the employment relationship is also minimal here.

Class 2: Performance wage

(60 contracts)

Although characterized by a certain degree of weakness of the contractual structure, this class differs from the preceding one insofar as performance pay is common. Restrictions to worker mobility are also important. The employer seeks both to stimulate his work force and protect the firm's investments (in particular in matter of training). Like the previous class, the qualification of the job is less often specified through an explicit definition of its content. This class, therefore, also relates to an employment relationship governed by a collective status over which the employee and the employer have little control. Nevertheless, this is the class in which references to company-wide agreements (within the text of the contract) are greater in number, especially regarding the remuneration and working hours.

By contrast, the common denominator of the next two classes is the extent of contractual guarantees.

Class 3: Strong subordination of the employee

(53 contracts)

Contracts in this class are characterized by a high level of flexibility of working hours and work content. They often mention work control devices and references to dismissal for serious misconduct.

Compared to the previous two classes, these characteristics attest that the employers want greater security; they use the formal means of the contract to ensure highly flexible working conditions and close control of the employee's work. In this sense, we can speak of a strong subordination of the employee to the employer. The large number of flexibility clauses, especially in regards to working hours, can be related to the high proportion of contracts pertaining to part-time jobs (55%, against 32% for the complete sample)^{iv}.

These contractual clauses may be a way that facilitates the dismissal of employees. A partial comparison of some of these contracts with the related company rules (French *Règlement Intérieur*)

shows that often the former simply mirrors the clauses of the latter. The employer acts as if the employee had made a contractual commitment; although the employee is simply deemed, by law, to comply with the company rules. This suggests that some clauses may be considered void by the court, but that does not reduce their threat effect before the dispute is brought up (Suchman, 2003).

Class 4: Protection of intangible assets

(35 contracts)

The last class encompasses contracts with extended information, where firms seek to guarantee the protection of their intangible assets (human resources, clientele and technological assets) and geographic mobility, which often involve a very strong requirement to undertake business trips in the context of outside assignments. It is also in this class that responsibility clauses (e.g. performance clauses, obligation to contract insurance for civil liability) are over-represented, and workers being encouraged to act autonomously in order to meet customers' needs.

These four classes account for the diversity of individual employee contracts. In summary, the first class relates to an employment relationship governed primarily by a collective status over which the employee and the employer have little control. The written document is essentially a tool for informing employees of their main conditions of employment, rather than a contractual device oriented towards inter-individual negotiation. The second class adds to the first one some restrictions on mobility and often involves a performance pay, but not much else. The last two classes develop extensively the formalism of the contract, with high flexibility and work control for class 3, and clauses on intangible asset protection for class 4.

THE DETERMINANTS OF THE PROVISIONS IN A CONTRACT

The previous section has shown the characteristics of employment contracts can be summarized into four categories; the issue is now to examine what causes the choice among these alternative contractual structures.

THE EXPLANATORY FACTORS

The bargaining power is taken into account through two proxies: the conditions prevailing in the specific labour market, as reflected by the vacancy ratio (for each of the 17 types of job and years of the contract), and the existence of a trade union representative in the firm (the precise definition of the explanatory variables is given in appendix B). A high vacancy ratio or the existence of a trade union should allow the employee to obtain more easily a contract without many provisions restricting the way he does his job, like flexibility clauses, or restricting what he is allowed to do after quitting the

firm, like a covenant not to compete. Two variables concerning the state of the local labour markets are also tested: growth of employment and turn-over.

The technological context is captured by two variables linked to the degree of desired flexibility: the type of job (combination of the hierarchical class and the job function) and the nature of the industry (industry-wide collective agreement or sector).

The degree of appropriation of intangible assets by the employee is also proxied by the type of job, in order to test hypothesis H2. The degree of employee commitment to the employment relationship, and thus the capacity to appropriate these assets, is taken into account through two variables: fixed-term or unlimited contract, and full or part-time job. Since the risk of hold up should be particularly likely with employees working within small companies, the size of the firm (number of employees <100, between 100 and 500, >500) is introduced.

The menu cost (H1 hypothesis) of a sophisticated contract can be tested indirectly through the size of the firm, since a large firm is more likely to develop human resource management tools and structures.

Year dummies are introduced in order to capture year-specific effects, which reflect the economic environment conditions, changes in labour legislation, and other time related influences. Finally, the industry-wide collective agreement dummies control for the presence of certain provisions in the contract which are already codified in this type of agreement.

THE ECONOMETRIC RESULTS

The specification for the statistical analysis of the choice of one of the four categories of contract is a multinomial non-ordered logistic regression, where the reference category is the “minimal” contract (the most numerous), so that every comment regarding an effect is in reference to that category. The variables are selected for inclusion in the model when their coefficient are significantly different from zero at the usual 5% threshold, or in case of multiple dummies describing one variable (for instance the years or type of jobs), when at least one dummy is significant. Fortunately, year dummies were excluded for lack of statistical significance, which is a (small) sign of stability of the model.

The results presented in table 2 show that the probability of a “*strong subordination of the employee*” type of contracts is increased with a part time job, a firm of large size (over 500). It is decreased when the vacancy ratio is high, where the firm is small (under 100) or when a trade union is present in the firm. The “*performance wage*” type of contracts is more likely when the vacancy ratio is low, and less likely when the size of the firm is small (under 100). The “*protection of intangible assets*” contracts does not depend on the state of the labour market (the vacancy ratio) and the size of the firm, and it is less likely with part time job and when a trade union is present in the firm.

Insert table2

DISCUSSION OF THE RESULTS

Some of the point estimates remain imprecise, which can be attributed either to a lack of relevance or to the small sample size as well as to measurement issues. However, sensible patterns that validate some of our previous hypotheses emerge.

The variables explaining the occurrence of a *strong subordination* contract are favourable to the hypothesis *H4* pertaining to the relevance of the bargaining position: a high vacancy ratio or the presence of a trade union lowers the probability of this type of contract. Technology is not a strong determinant: neither the type of job nor the industry is significant at the usual level, although it is possible that a larger dataset might result in a more precise estimation of the coefficient of this variable. Concerning the positive effect of a part-time job, it is in part due to the French legislation that requires more information for the variability of schedules with part-time jobs.

The second hypothesis (*H2*) places emphasis on the *protection of intangible assets*. This is not strongly linked to the degree of appropriation, since neither the type of job nor the size of the firm predicts this type of contract. However, the negative effect of the part-time job variable can be interpreted as support for the appropriation hypothesis: Part-time employees are less likely to obtain information-intensive jobs within the firm. The presence of a trade union is associated with a lower probability of this kind of contract, which can be interpreted again as an effect of the bargaining position of the parties (*H4*). But the causality might run the other way. The existence of trade unions is not exogenous and depends on the employees inside the firm, on the history of conflicts, etc. In some cases, the characteristics of employees and jobs will not militate toward trade unionism, for instance where independent thought and autonomy are important, as in creative or research jobs, or more generally in knowledge-intensive jobs.

As mentioned previously, the theoretical notion of *completeness* is by nature quite vast, and cannot be easily measured through actual facts or clauses in the contract. There is some evidence of the importance of a “menu” cost effect stemming from a sunk investment, since small firms (<100 employees) are less prone to use a sophisticated contract (*H1 partly confirmed*), except for the protection of intangible assets category of contract that seems to constitute a stake large enough for size not to matter. In such cases, small entrepreneurial technology firms usually outsource to external legal professionals the drafting of the contract (Suchman, 2003). The second implication of the theory of completeness that relates to the time horizon of the employment relation is not confirmed: A shorter duration of contract –as measured by the dichotomy between fixed-term and unlimited-term contracts– is not important for the existence of a sophisticated contract. Hence, a higher chance for renegotiation does not preclude sophistication in contracts.

As regards the *performance wage category of contract*, the individual bargaining power of the employee, as proxied by the vacancy ratio, lowers the probability of this kind of contract. It is less

likely to occur in small firms, which might reflect the organizational sophistication necessary to implement it (H3), or the fact that the proximity of the manager to the employees makes redundant a formal contractual device to verify the work.

In the French case, the presence of a trade union has no explanatory power. This does not go the same way as results based on English case studies, where the individualisation of wages is less frequent when unions are strong^v (Brown *et al*, 1998). To go further into the analysis would require better information on the type of trade union, since French unions have different positions on this matter (Bévort and Jobert, 2008). Nevertheless, this result suggests that globally, French trade unions do not hinder the implementation of performance evaluation (from a descriptive point of view, the comparative study on performance pay practices, from the 2004 French REPOSE and British WERS surveys, shows that this usage is more developed in France than in the UK, cf. Marsden *et al*. 2008).

The literature until now has tended to treat technological evolution as a factor directly affecting working and employment conditions. However, our analysis suggests the existence of an important role for bargaining power as well. This additional effect can contravene the force of technological evolution in instances where the workers' position is strong. It might be expected that the trend towards the intensification of work could be dampened in an environment where labour markets are tight (Green, 2004) when demography will end up to labour shortages in developed countries.

CONCLUSION

The diversity of employment contracts can be summarized by an empirical hierarchical classification in four main categories: (i) the minimal contract in terms of provisions, with an employment relationship governed primarily by a collective status over which the employee and employer have little control, (ii) the performance pay contract that often also stipulates restrictions on mobility, (iii) the strong subordination type of contract that encompasses flexibility and work control devices, and lastly (iv) the contract focused on the protection of intangible assets that often adds provisions for geographic mobility.

The choice of a labour contract is not a subject the theory has managed to deal with in a global framework. Although an extensive literature exists on contracts generally, few studies have dealt with the specificity of the labour contract. The main theoretical ideas relate to incentives, to the possibility of a hold-up of investment after a contract is settled if no proper provisions are stipulated, to the organisation skills needed to assess work, and to the demand of technology for flexibility on the part of the employee. Also, the basic theory of bargaining applied for the negotiation of wages can easily be transposed to the provisions in a contract, with reference to the hedonic price literature. The second part of this paper consists of an econometric analysis of these determinants.

The dataset is an innovative one consisting of French labour contracts, but it is relatively small with a few hundred contracts. Bearing this caveat in mind, this analysis is an attempt to go beyond the literature dominated by case studies -which by nature have a limited scope- and apply an econometric analysis to the determinants of the choice of a type of contract. The first result is that menu cost is important: small firms are likely to implement unsophisticated contracts. Another result is that the strong subordination type of contract, as well as a performance-wage type, is less likely to prevail where there is a strong bargaining position of the employee. So, in many cases, the bargaining process is relevant and is sensitive to the state of the micro labour market. Technology, the “right” process of production, or the type of job cannot be considered as the only causes of the specificity of a contract. Economic factors play a part beyond the push of technology, and there is not always one standardized way to regulate labour relations.

Appendix A: *THE MAIN TRENDS OF THE FRENCH INDUSTRIAL RELATIONS SYSTEM*

A contractualisation process at the individual level has been introduced despite a stronger demand by firms for flexibility in employment relationships. The political argument was that the negotiation of flexibility must be shifted to the collective bargaining level where the interests of the parties are more fairly balanced (Waquet, 1999).

The 1990s were marked by new forms of more decentralised collective bargaining in which trade unions played a less important role. The rate of union membership, which in France is rather low relatively to other industrialized countries, again has decreased from 10.1% in 1990 to 8.3% in 2003 (OECD, 2004). Nevertheless, the coverage of employees by sectoral collective bargaining has remained stable during this period: around 92% if we consider only the private sector

The decentralised character of these new forms of collective bargaining is well illustrated by the increase in company-wide agreements playing an important part in individualising the employment relationship and organising its flexibility: work time, training, multitasks, salaries and the definition and assessment of competencies (Bévort & Jobert, 2008). The promotion of 'social dialogue' and of information and consultation arrangements with a procedural orientation is widely ensured by EC law (2002 Directive concerning information and consultation). Furthermore, the consultation and the negotiation of work conditions were extended to new actors -the non-union employee representatives.

This decentralisation process has favoured the contractualisation of the employment relationship at the firm level, without any procedure of extension to other firms belonging to the same sector. Company-wide agreements on working hours clearly illustrate this process at the heart of the Aubry law on the 35-hour work week, passed in 2000 (Pélisse, 2004). From the national perspective, this law represents a main change in French labour law and has also contributed to the transformation of the industrial relations system- in particular a procedural individualisation of the employment relationship that reflects the removal of collective mechanisms for determining work conditions. Our interviews with HR managers reveal that not only did collective negotiation about reduced working time result in amendments to the employment contract, but those amendments also led to an explicit writing of unlimited-term contracts, especially by introducing standard clauses corresponding to the working times opted for by the employee.

APPENDIX B: THE DATA

This research owes a great deal to an initial exploratory survey on the possibilities of constructing an employment contract database, undertaken for a report financed by the French Ministry of Research (Bernardi et al. 2003, XXX 2007). The database consists of 308 employment contracts from 217 firms, in various sectors of activity, located in France, signed between 1997 and 2004.

The way the data have been collected is documented below, i.e. the codification of the provisions in the contracts, the representativeness of this data along with some characteristics of jobs and firms, the description of the variables related to the situation of the labour market, and the last item gives some details on the typology of contracts.

** Collection of data*

There is no obligation to make available to the public a labour contract, therefore the origin of the information cannot come from a proper sampling scheme; here the data comes from five main sources. Contracts collected directly from employers account for 28% of the sample. Contracts obtained from a legal firm (17%) or trade unions (10%) could introduce a bias since they were taken from case files and therefore concerned disputes. Yet these most often concern only one clause, leaving the main features of the contract external to that possible bias. The collection of contracts from employees (32%) via social networks is an important source, as well as contracts obtained from the labour inspection office (14%), most of which corresponds to part-time contracts. In order to work on a more balanced dataset, it is weighed to represent the French economy from the point of view of industries (NES36 nomenclature) and size (2 items).

Insert Table 3

** Representativeness*

We know that the characteristics of the stock can be different from the inflow, with in the latter case a tendency for less protection; for instance for the exhaustive data coming from the French administration, less than 1/3 of hires are with unspecified tenure (Dares DMMO, 2004), whereas 3/4 of the stock of employees is under unspecified tenure contracts (INSEE employment survey, 2000). In our dataset, the proportion is 82%; in this dimension, it is closer to a stock than to a flow (unfortunately we have no access to other exhaustive characteristics of new jobs as opposed to a stock).

One difference between the dataset and the population of jobs in France is in the size distribution of firms: before weighing, 3/4 of recent contracts come from medium or large firms (≥ 100 employees) in this database against 1/3 for the employment in the private sector. Also, part-time jobs are over-represented (32% for new contracts, against 17% in INSEE employment survey, 2000). From the point

of view of broad industries (16 levels), the Agriculture, forestry, fishing sector is not represented, and Financial activities & Education, health and social work were respectively over or under-represented, but the weighing scheme (by 36 types of industries) that is applied prior to our analysis naturally counteracts that shortcoming. At the more detailed 36 industry level, some industries are not present, which leads to differences in weights, but altogether the industries are fairly well balanced as can be seen in table 3. Non-represented industries are: Manufacture of domestic equipment; Building of ships and boats, manufacture of railway locomotives, rolling stock; Mining and quarrying except energy producing materials, manufacturing of other non-metallic mineral products, Manufacture of textiles; Manufacture of wood, wood products, pulp, paper and paper products, Manufacture of chemicals, rubber, plastic and chemical products; Electricity and gas supply; Collection and distribution of water; Sale, maintenance and repair of motor vehicles and motorcycles; Research and development; Other personal and domestic services.

** Codification of contracts*

The documents collected are either contractual agreements or written statements on employment conditions. Each provision is codified as a raw variable except for the exclusion of trivial clauses, as for instance the obligation to pass a medical test before entering the firm. Not all the provisions in the contracts are contractual by nature. Sometimes they are simply a reminder of the rules defined by the employee's collective status (industry agreement); others may refer to advantages that the employer sees not as obligations but simply as an item of information. It can happen that a provision is not licit (that is, not always validated *a posteriori* by the judicial system), which can mean that even illicit clauses have a threatening effect when incorporated into the contract. We have not attempted to define what is an obligation or a piece of information, a licit or an illicit clause; that is for the courts to decide.

Many contracts are standard ones that refer to a class of employees; only a restricted number are written in a personalized way that attests the negotiation of clauses or particular advantages.

** Other characteristics of jobs and firms*

As can be seen in table 4, we distinguished unlimited-term from fixed-term contracts, for which certain legal constraints exist in French law as far as their form is concerned. 17.6% of the contracts in the data base are fixed-term contracts, which is close to the national mean over the past few years (11% in 2000, INSEE employment survey, including public sector).

Apart from this legal nature of the contract (fixed-term or unlimited), we distinguish jobs in terms of whether they are full- or part-time, the hierarchical class in the sense of collective agreements (workers/middle rank/executives).

Insert Table 4

Also, the share of contracts signed with executives, in the sense of industry-wide collective agreements, is over-represented (41%), as opposed to 15% in 1999 (last population census, excluding farmers and artisans). One important characteristic of job we have introduced is based on the combination of the hierarchical class and the job function, of which 17 categories were retained in order to have enough contracts in each one.

Information on firms concerns the size of the firm (number of employee <100, between 100 and 500, >500) and the presence or not of union membership. We have also constructed a variable to characterize the collective agreement to which the employment contract corresponds. In case there is too few employees, groups are made according to the business sector. A total of 21 categories were selected, one of which corresponded to jobs in large public-sector corporations (3.5 %). Among the industry-wide agreements that were well-represented was the one applicable to staff of 'technical consultants, engineering consultants and consulting firms' (9.2%). The other categories represent sectors (agri-food, chemicals, trade).

* *Synthetic variables*

We have constructed synthetic variables, encompassing several original variables that pertain to the same kind of characteristics of the contract. Table 5 shows the relationships of these synthetic indicators with the original dummy variables (and one simple dummy variable where there is only a reference to the employment qualification without any additional definition of the content of the job). These 11 synthetic variables are used for the typology of contracts.

Insert Table 5

* *Labour market variables*

Two variables are available to proxy for the state of the micro labour markets; they are included in the qualitative regression explaining the choice of a type of contract:

- *Turn-over* is half the sum of the hiring and the separation rates (relative to the stock of employment), for each year and type of job (source: Dares-DADS),

- *Vacancy ratio* is the ratio of new vacancies (for a year) divided by unemployment (categories 1+2+3), for each year and type of job (source: Pôle-Emploi/ANPE),

* *Typology*

The typology is constructed by the hierarchical ascending classification technique (CAHQUAL procedure of the INSEE & SAS software). We seek a limited number of classes, for the sake of the clarity of the presentation, and a separation that is clear cut, as appreciated by the inertia of the grouping: a 4 class partition meets these criteria (graph 1 indicates that a 3 class partition would also

do quite well, but in a less detailed manner). This 5 class partition substantially increases the intra-class variance, compared to the partition into six classes (from 71% to 77% of the share of total variance).

Insert Graph 1

The mean of active variables, by typological class, are presented in table 6.

Insert Table 6

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Table 1: **Signed decomposition of rho² of active variables**

(1/1000, except RHO2)

Type of contract:	Minimal contract	Performance wage	Strong subordination	Protection of intangibles
RHO2	1.7836	3.9841	4.1358	14.9987
Active variables*				
Standardized qualification of job	51	56	-138	-11
Flexibility of the job content	-72	-62	145	36
Geographic flexibility	-75	-39	176	93
Temporal flexibility	-99	29	7	84
Work monitoring devices	-154	-70	356	9
Contractual definition of dismissal reasons	-70	-20	101	27
Restriction to worker mobility	-77	96	-19	192
Confidentiality clause	-67	9	1	139
Grant back to the employers of intellectual properties and firm's property rights upon the clientele	-42	33	-39	286
Performance pay	-190	579	-10	33
Employee's individual accountability	-103	6	8	167

* see appendix, table 5 for the definition of variables

Table 2: **Regression results** (reference choice is the “minimal” contract)*

<i>Variable</i>	<i>Type of contract</i>	<i>Coefficient estimate</i>	<i>Standard error</i>	<i>Pr > ChiSq</i>
intercept	strong subordination of the employee	0.17	0.4345	0.6885
	performance wage	0.20	0.4864	0.6838
	protection of intangible assets	-2.02*	0.6878	0.0033
part time	strong subordination	0.56*	0.1664	0.0008
	performance wage	-0.28	0.2326	0.2217
	protection of intangible assets	-0.99*	0.4085	0.0153
small firm (<100)	strong subordination	-1.32*	0.2938	<.0001
	performance wage	-0.97*	0.3744	0.0099
	protection of intangible assets	-0.70	0.3925	0.0760
medium size		reference		
large firm (≥500)	strong subordination	0.77*	0.2697	0.0043
	performance wage	0.55	0.3101	0.0772
	protection of intangible assets	0.71	0.3975	0.0742
vacancy ratio	strong subordination	-1.53*	0.7664	0.0455
	performance wage	-3.17*	0.8823	0.0003
	protection of intangible assets	-0.95	0.9944	0.3418
presence of trade union	strong subordination	-1.02*	0.2832	0.0003
	performance wage	-0.18	0.3114	0.5575
	protection of intangible assets	-1.49*	0.4241	0.0005
no trade union		reference		
trade union unknown	strong subordination	-0.01	0.2276	0.9716
	performance wage	0.29	0.2749	0.2938
	protection of intangible assets	0.08	0.3421	0.8133

* The following variables were not significant : year dummies, gender of the employee, duration of the contract (fixed or unspecified), type of job, industry or industry-wide collective agreement, turn-over.

Table 3: Comparison of industry shares in the sample and in the stock of employment

<i>Industry share (16 levels)</i>	recent contracts*		stock of employment+
	%	% weighed	
EA Agriculture, forestry, fishing			1
EB Manufacture of food products, beverages and tobacco	3	3	3
EC Manufacture of consumers goods	6	3	3
ED Manufacture of motor vehicles	2	1	1
EE Manufacture of capital goods	3	2	3
EF Manufacture of intermediate goods	1	1	6
EG Energy	1	1	1
EH Construction	1	4	6
EJ Trade	15	18	15
EK Transports	9	5	5
EL Financial activities	10	4	3
EM Real estate activities	3	3	2
EN Services to businesses	27	25	19
EP Personal and domestic services	15	14	8
EQ Education, health and social work	6	15	13
ER Administration	0	2	10
<i>All</i>	<i>100</i>	<i>100</i>	<i>100</i>

* this database

+ private employment (source: INSEE, DADS 2004)

Table 4: Other characteristics of jobs and firms (%)

Hierarchical level	
Blue collar	6.9
Middle rank and employee	52.4
Executive & Manager	40.7
	100.0
Type of job	
11 Blue collar in production	2.5
12 Middle rank in Production	1.6
13 Executive Production, maintenance	1.6
21 Blue collar in maintenance, handling, transport	0.7
31 Blue collar or employee cleaning, caretaking	6.8
42 Middle rank in handling, transport, maintenance	6.5
52 Employee (cash desk, counter, secretarial work)	15.8
62 Middle rank management	4.7
63 Executive management	13.1
Accountant, lawyer	1.7
72 Middle rank technical salesman	13.8
73 Executive technical salesman	9.3
8 Consultant, Research & Development	6.4
8I Technician or engineer Computing	3.3
92 Middle rank in Health or Caring	7.1
102 Middle rank in Communication or information	2.4
103 Executive Communication or information	2.7
	100.0
Firm s size	
VSF (<100)	23.3
SMF(between 100 and 500)	22.2
LF (>500)	54.5
	100.0
Presence of union membership	
No	25.0
Yes	41.1
Unknown	33.9
	100.0
Industry-wide collective agreement (CA) or sector	
Ex-public firm sector	3.5
Professional status	1.4
Agri-food	4.1
CA Parisian UIMM	1.7
CA Executives metallurgy	3.7
Other transformation industries	6.1
CA food trade	7.8
Other trades	10.1
CA Catering, hotel, café	5.6
Other activity of restauration	3.5
CA Road transport	7.1
CA Air transport, ground staff	1.0
CA Banks	1.7
CA Insurances	1.2
Other financial industries.	1.1
CA Techni. and engineering consultants	9.2
Other consulting industries	1.5
Firms standard services	8.2
Education, health and social action	13.6
Entertainment and cultural industries	3.4
Other services	4.5
	100.0

Table 5: Synthetic variables and their raw components

<i>Variable</i>	<i>Definition</i>	<i>Mean</i>
Flexibility of the job content	= Multi-skills obligation + Functional flexibility + Training obligation during the contract	0.53 0.16 0.27 0.10
Geographic flexibility	= Trips obligation + Geographic mobility + Foreign trips and mobility	0.94 0.39 0.47 0.08
Temporal flexibility	= Flexibility of work hours + Predefined number of work hours + Extra hours obligation + Unusual working hours + Obligation to have a place of living close to the work place + Obligation for the employee to plan ahead his holidays	1.95 0.47 0.24 0.31 0.24 0.05 0.33
Work monitoring devices	= Obligation to report and to inform the hierarchy + Obligation to work with certain managerial norms, tools or product + Obligation in terms of 'conduct and presentation' + Company's right to allocate the clientele	0.40 0.19 0.05 0.14 0.02
Prequalification of dismissal reasons	= Defined 'misconduct' leading to dismissal + Defined 'misconduct' leading to the suspension of the employment contract	0.43 0.38 0.05
Restriction to worker mobility	= Forfeit for training clause + Non poaching clause + Non-compete clause + Non-compete compensation + Exclusivity clause + Loyalty clause	1.03 0.03 0.03 0.20 0.05 0.41 0.31
Confidentiality clause	= Obligation of discretion + Trade secrecy + Restitution of equipments and technical documents + Researchers need authorization to publish	1.36 1.02 0.29 0.05
Grant back to the employers of intellectual properties and firm's property rights upon the clientele	= In matter of patent + In matter of copyrights (software) + Interdiction of the use of the trademark for personal use + Obligation to respect the firm's clientele after the termination of the contract	0.25 0.06 0.05 0.01 0.13
Performance pay	= Remuneration according to individual performances + Remuneration due to technological inventions + Stock-options	0.29 0.24 0.03 0.01
Employee's individual accountability	= Performance clause + Other clauses of liability + Obligation of means	0.36 0.14 0.13 0.09

* For the construction of this variable, 'trade secrecy' has been weighted by '2' in order to emphasise this kind of restrictive provision which can refer to strategic knowledge for the firm.

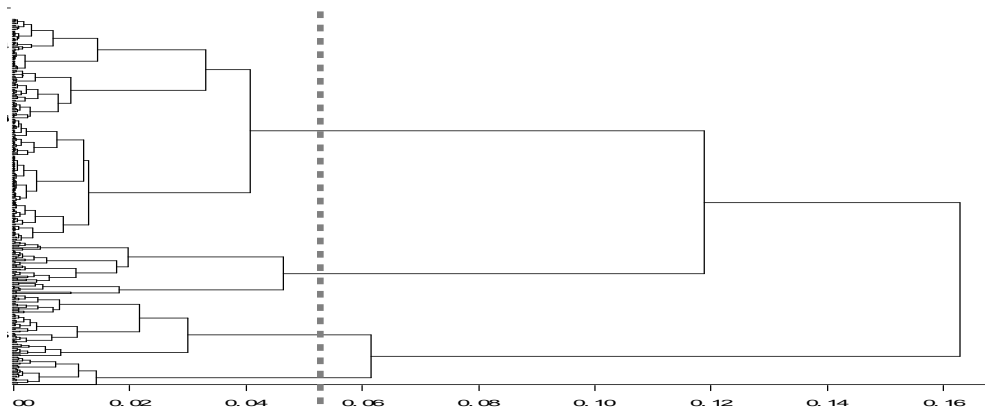
Table 6: mean of active variables, by typological class

Active variables	Total (308)	Class1 (160)	Class2 (60)	Class3 (53)	Class4 (35)
Definition of employment conditions					
<i>Qualification only*</i>	0.49	0.64	0.73	0.11	0.29
Job Flexibility	0.53	0.27	0.17	1.10	1.07
Temporal flexibility	1.62	1.21	1.18	2.58	1.95
Geographic flexibility	0.94	0.57	1.24	1.09	1.99
The employee's subordination to the firm					
Normative devices of work monitoring	0.40	0.04	0.04	1.24	0.66
Contractual definition of dismissal reasons	0.43	0.18	0.23	0.89	0.88
Protection of the firm's immaterial assets					
Worker mobility restrictions	1.08	0.59	1.91	0.71	3.34
Confidentiality	1.36	0.98	1.58	1.41	2.97
Grant back to the employer IPRs and list of customers	0.25	0.09	0.46	0.01	1.47
Employee's individual accountability					
Performance pay	0.29	0.00	1.04	0.19	0.63
responsibility	0.36	0.06	0.48	0.49	1.49

Reading: in line 2, column 2, '0.27' means that the average value of the indicator of 'job flexibility' is 0.27 for all the contracts belonging to class 1.

* this variable is a dummy variable (see appendix).

Graph 1: Inertia of partitions



Reading: On the left hand side are the individual contracts, unordered on the vertical axis. Going to the right of this graph, the lines show the various groupings. The distance between one node to the other, on the horizontal axis, shows how much information is lost when a wider group is chosen.

ⁱ Labour contracts have been examined by economists mainly through general proposals to weaken the commitment by the firm and promote fewer peculiarities. The main trend is treated by Blanchard & Tirole (2003) and Cahuc P & Kramarz F (2004) who stress the existing dichotomy of French contracts between fixed term and unspecified term contract, and advocate the creation of a unique contract (whatever the duration), with regular increases in severance pay according to tenure time, and some kind of experience rating for the taxation of the firm. In most cases, these proposals focus on the high cost of dismissing an employee in the French labour market, which consists of a direct cost to be paid directly or through the length of delays in the dismissal process, and the risk of litigation cost.

ⁱⁱ Although the institutional environment is different, research on the British case shows that contractualization has not been developed in employment relations and that written documents generally have an informative purpose. See Brown et al. (2000).

ⁱⁱⁱ The French notion is the '*contrat d'adhésion*', or subscription contract. For a recent discussion of this legal notion see Chazal (2004) and Ghestin (2000). The latter points out the protection of the employees' agreement, which are in position of inferiority by way of constraint or ignorance. These legal requirements permitting a correct and fair contractual procedure must be distinguished from those which favour an objectively fair result according to a distributive point of view.

^{iv} As regards working hours, part-time labour regulations (Art. 214.3 of the Labour Code, 20 December 1993 Act) stipulate that employers have procedural requirements and, in particular, have to introduce a clause providing for the conditions of changes to the distribution of working hours.

^v Remember that in this study, although this type of contract is characterised mainly by 'performance wage', it is also by 'restrictions to mobility'.