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Individual dismissals for personal and economic reasons in French firms: One or two models?

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Abstract. Most OECD countries divide dismissals into different types, depending on their grounds, as either disciplinary or economic. Restricted to individual dismissals, this article seeks to better understand how the differences between these two grounds with regard to statutory provisions result in the dismissal behavior of employers. Do employers choose this designation to minimize termination costs (severance payment and damages)? Using an original database of French establishments from 1999 to 2009, this article aims to analyze the factors influencing employers' use of economic and personal dismissals, providing insights into the enforcement capability of legal dismissal rules and the part played by strategic behavior. In our view, strategic behaviors should be reflected in the factors influencing both types of dismissal decisions identically, whereas compliance with legal provisions induces contrasting influences. Thus, the hypothesis tested – called the *uniqueness of the model of dismissal* – is the absence of specificity of the determinants, especially regarding the economic conditions of the firm and related human resource management characteristics, between the two types of dismissal. The results highlight the existence of two quite different models of dismissal even though the personal dismissal determinants are not orthogonal to the economic conditions of the firm. Economic dismissals are essentially explained by the economic conditions of firms, whereas personal dismissals are linked to the propensity of human resource management to retain employees.

Keywords: Dismissals · Labor law · Human resource management · Firm database

JEL Classification: J63 · J53 · D22 · M54 · L25 · K31

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1 Introduction

Since the early 2000s, many European countries have undertaken reforms of their employment protection legislation (EPL). Most of these efforts deal with dismissal law (see Eichhorst et al. 2017 for an overview of the spread of this topic in the recent European reform agenda). Spain, Italy, Germany and France are among the countries that have pursued these reforms most vigorously (Picot and Tassinari 2017). The EPL reforms in these four countries are aimed at easing dismissals. In Spain, the 2012 labor regulation reform reduced the cost of dismissal for permanent full contracts, broadened and clearly articulated the definition of fair economic dismissal (Jimeno et al. 2018). The 2015 Italian reform (*Jobs Act)* introduced a new labor contract with severance payments increasing with tenure. This reform also phased out the reinstatement clause applied to unfair dismissals (Fana et al. 2016; Boeri and Garibaldi 2018). In Germany, in 2004, the government introduced a mutual agreement dismissal, which simplified the procedure and specified the amount of severance payment in case of economic dismissal (Jahn 2009). In France, the new "Labor Law" in 2016 described broad conditions for fair dismissal on economic grounds, and in 2017, a rate scale for unfair dismissal compensation was introduced by National Assembly ordinances.

EPL and, more specifically, dismissal rules have been extensively studied in the literature. At the macroeconomic level, the impact of this legislation on the unemployment rate, employment level or speed of employment adjustment is scrutinized (see OECD 2004 for a fully detailed survey). At the microeconomic level, the focus is on the dismissal cost effects on hiring and firing decisions and then on net and gross worker flows (see, for example, Messina and Vallanti 2007; Haltiwanger et al. 2014).
However, less is known about how employers take into account EPL rules in their dismissal decisions. Nonetheless, observers note the wedge between the "law on the books" and "its enforcement in practice" (Estreicher and Hirsch 2013). A subfield of the EPL literature has thus developed to analyze how employers cope with EPL constraints while seeking cost minimization *in the shadow of the law* (Goerke and Pannenberg 2010; Malo 2000). In this line of research, one main issue is the way employers in most countries can exploit the coexistence of two types of dismissal motives, economic or disciplinary. If the key distinction between these two categories is their associated severance payments and damages, employers have room for opportunistic behavior (e.g*.,* Malo 2005; Guell 2010).

The aim of the article is to estimate the factors related to employers' dismissal decisions as a means of supplementing this literature, which could lead to a better understanding of how EPL affects, and how it is affected by, the behavior of employers. We restrict our analysis to the field of firms that have not carried out collective dismissals through a "*job preservation plan*"[1]

[1] An employer that, within thirty days, lays off ten or more employees because of redundancy must hold several meetings with the relevant work council or other employee representatives and must write a "*job preservation plan*" (*Plan de Sauvegarde de l'emploi)* that attempts to limit layoffs and reclassify dismissed workers. This plan

(*Plan de Sauvegarde de l'emploi* in French). Like other authors,[2] we consider that these collective dismissals, because of their unique procedures and the severance payment involved, should be studied as a separate object. But even more, we think it is more an issue of the number of layoffs that is primarily played out.[3] Therefore, to estimate the influence of the legal framework on employers' behavior, two types of data are needed: data on dismissal decisions at the company level and data on the economic and managerial characteristics of companies. The main original contribution of this article is that it relies on a French database built for this estimation. First, this database matches two types of national surveys. Based on companies' business accounting, the former (*annual company survey)* details their activity and profitability features, while the latter (*workforce movement*) indicates all worker flows in and out of companies (e.g., economic and disciplinary dismissals, quits). Second, this information is followed up for 11 years from 1999 to 2009.

The rest of this paper is organized as follows. The next section is devoted to the literature, which focuses on companies' strategic behavior regarding the difference in the two types of individual dismissal rules. The French legal framework and its dismissal rule-specific features are then described in the third section to ground the hypothesis tested. The fourth section presents the database, the sample characteristics and the relevant variables for the hypothesis tested. The fifth section presents the model to be estimated and discusses the results obtained.

2 Theoretical and empirical background

Most OECD countries identify different types of labor contract terminations initiated by employers depending on their grounds (disciplinary or economic) and the number of persons concerned. In most legislation, these two dividing lines (regarding motives and numbers) are reflected in the level of severance payment and/or procedures. These levels are therefore taken into account in the EPL indicator built by the OECD, and they can be translated into labor cost differentials for employers and compensation gaps for employees. This background must then be enlarged by the possibility for both parties to bring the case before a court, which implies potential amounts of damage compensation and additional processing time.

An extensive literature has developed that analyzes how this framework results in strategic behaviors and brings to light employees' and employers' tradeoffs between these categories

may include measures such as transfers, new operations, training, and a reduction in work to decrease the number of layoffs.

[2] See Boeri et al. (2017), Malo (2001), Malo and Perez (2003).

[3] This does not mean that we exclude possible strategies to circumvent these "*job preservation plans*", but we think it is more a matter of dividing several dismissals through time. Moreover, this issue must be analyzed in a more general framework in order to take into account all the other open-ended contract terminations. The possibility of substitution is wider and includes not only personal dismissals but either mutually agreed terminations (*rupture conventionnelle* in French), retirement, quits, etc.

and their consequences. In which context should economic grounds be preferred by employers (Malo and Perez 2003)? How do the parties bargain in the "shadow of the tribunal" (Malo 2000)? Under which circumstances should employees bring a case before a court, and how will employers bargain to avoid the court's ruling on dismissal fairness (Goerke and Pannenberg 2010)? In this framework, the termination designation is the result of a cost and/or risk minimization strategy, whereby the potential deviation between the "law on the books" and its enforcement in practice finds its rationale. This strategy leads to *substitutions*, meaning that the designation chosen by the employer does not fit the statutory provisions of this qualification or, at least, its intent. Various kinds of substitution behavior are discussed in the literature: collective versus individual (Oyer and Schaefer 2000), economic versus disciplinary (Garcia-Martinez and Malo 2007), disciplinary versus other types of dismissal (Galdon-Sanchez and Guell 2000), and fair versus unfair (Malo and Gonzalez-Sanchez 2010; Malo 2011). In this framework, the legal designation of a type of termination depends on the expected payoff attached to each issue of this designation. In most cases, the model shows that as termination costs partly depend on court access and the ruling, employers choose the designation associated with the lowest probability of a ruling in favor of the worker if he brings his case before the court.

Finding empirical evidence of such theoretical propositions requires an assessment of the parameters at stake: the probability of winning in court assumed by each party and the relevant gap between the level of damage compensation to be awarded by the court for each motive of separation. These elements are hardly assessed because the necessary data on trial issues are mainly unavailable (but see Fraisse et al. 2015 for an attempt in the French case). Therefore, an important branch of the literature focuses on the sources of variability in these probabilities due to the potential bias of judges. Four main sources of influence emerge: the economic environment (e.g., Ichino et al. 2003, for Italy), political links between judges and the government or partisan associations (e.g., Berger and Neugart 2011 for Germany; Desrieux and Espinosa 2019 for France), the structure of the process before and during the trial (e.g., Kaplan et al. 2008 in the case of Mexico or Saridakis et al. 2008 in the British case; Malo et al. 2018 for Spain) and the characteristics of the litigants (e.g., Knight and Latreille 2001 for England). All these studies contribute to enlarging the set of elements that are likely to take part in the assessment of the monetary costs associated with each termination designation by employers. However, the link between these costs and the termination designation is not straightforward. Regardless of the influencing factor, the results are generally contrasting. For instance, regarding the role played by the macroeconomic context, Ichino et al. (2003) find that in the Italian context, an increase in unemployment leads judges to favor employees, while Marinescu (2011) obtain the opposite result in the British context.

Hence, while this literature improves our understanding of the setting in which employers' decisions are made as well as their rationality, the effective determinants, as they can be grasped

by empirical proxies, have been less studied. How are strategic behaviors and/or the statutory provisions of the legal framework reflected in the observed use of these categories? What do the empirical factors associated with these categories reveal on this matter? Our contribution to the prior literature consists of an attempt to appraise the part played by these strategies based on empirical factors associated with employers' decisions. We address this issue for one specific type of potential substitution in the choice of termination designation made by employers – individual economic versus disciplinary motives – and for the French context. This case applies when an employer facing poor economic or financial conditions declares a dismissal to be disciplinary even though the employer has no valid complaint. This substitution also applies when an employer designates a dismissal related to the economic redundancy of the employee's dismissed job as a dismissal for personal reasons.

This issue was discussed in France at the beginning of the 2000s. Indeed, an inversion of the division between the two types of dismissal and an increase in the number of disciplinary dismissals had been observed since the middle of the 1990s. Two main explanations were raised. The first linked these dynamics with the specificity of the legal context, with the procedure for collective layoffs being more stringent. The second insisted on the involvement of new management practices relying on individual performance. This management could provide an enforceable disciplinary motive when employers were seeking to reduce their number of employees. Both analyses assumed that employers had substantial leeway to free themselves from the provisions of the French labor code regarding dismissal designation. On this basis, they conjectured that employers use this latitude to disguise economic dismissals as disciplinary dismissals. The next section describes these provisions and the hypothesis that can be grounded on this basis.

3 From legal provisions to strategic behaviors: The hypothesis to be tested

3.1 The legal framework of dismissals in France

The cornerstone of French dismissal protection is the requirement that employers have a *real* and *serious* reason for termination. *Real* means that the employer can provide objective information to demonstrate the reason. *Serious* means that the termination is needed for the smooth running of the firm. This requirement applies to virtually all dismissals and all employers, regardless of size, and for every employee after the initial trial period, during which either party may terminate employment at will. Thus, the French labor code defines two types of dismissal. The main criterion that differentiates economic and disciplinary dismissals is the event responsible for the termination: if this event is inherent to the employee's behavior, then the designation of the dismissal is disciplinary; otherwise, the designation is economic.

Case law describes several valid reasons for disciplinary dismissals, including actions that significantly impede the managerial efforts of the employer as well as actions that prejudice the employer or failure to follow rules. However, the term disciplinary does not exclusively imply

misconduct. A disciplinary dismissal can also be based on reasons that undermine the employer's trust in the employee, such as poor job performance, including the failure to achieve goals set during the performance appraisal interviews, incompetence or the inability to work for medical reasons. For this reason, henceforth, we will use the term "*personal*" instead of "disciplinary" for this category. This broad understanding of personal motives seems to be specific to a small set of countries, including France.[4]

For dismissals for economic reasons, the labor code states that this designation is required in cases of a removal from a job due to substantial economic difficulties or technological changes or in case of an alteration of an essential element in the labor contract that the employee had refused.[5]

Thus, *on the books*, economic and personal dismissals apply to different contexts, and their designation is quite clear cut.

The substitution issue regarding the legal designation of individual dismissal relies on the difference in the ease with which termination can be achieved for both types of dismissal. This aspect refers first to procedures. For both motives, the employer has to plan a meeting with the employee prior to termination, the purpose of which is to explain the reasons for the dismissal. A first difference appears regarding the obligation to inform employee representatives, which applies only for economic dismissal. However, this obligation cannot be easily met in small firms, as only one-third of French establishments with fewer than 20 employees have employee representative authority (data of statistical service of the Ministry of Labor). A second difference stated in the labor code between economic and personal dismissal procedures relies on the employee's right to be rehired, which is stated in the code only for economic dismissals. However, one can argue that, first, this obligation also applies now through case law when dismissal relies on the inability to work for medical reasons and, second, this priority on reinstatement is attenuated by the size of the firm and its means.

The cost/benefit analysis firstly concerns severance payment. Over the period considered in this article (1999-2009), the severance payment in cases in which the dismissal was designated economic was twice as high as the amount due in cases of a personal motive. Under this regulation, an employee dismissed for economic reasons was entitled to severance pay equal to 1/5th of the employee's previous monthly pay for each year of service, with an additional 2/15th of monthly pay for each year of service beyond ten years. In cases of a personal motive, the amount was thus half this level and was not due in cases of serious misconduct (where the worker's behavior willfully harmed the firm).[6] For example, an employee dismissed after exactly 10 years of service is entitled to 2 months of wages if the motive given is economic and

[4] For example, Mexico and Brazil seem to share this specificity (Estreicher and Hirsch 2013).

[5] Case law adds two other motives: the reorganization of the company to preserve competitiveness and the cessation of activity of the company. These two motives were added to the labor code in 2016.

[6] In September 2008, the "Labor Modernization Law" changed these legal provisions to alleviate the differences between the two types of dismissal: the severance payments for the personal motive doubled.

only 1 month if the motive designated is personal.[7] Hence, the cost differential appears to favor dismissal for personal motives, especially in cases of gross misconduct, but the difference is relatively minor.[8] Nevertheless, the cost differential between dismissal for economic motives and dismissal for personal reasons is not the most discussed; rather, the differential due to cases in which an employee brings his case before a court, which finds the dismissal to be unfair, has received the greatest attention. Regardless of the type of dismissal, when an employer cannot show that the grounds for dismissal were "real and serious" under the labor code, the remedies include a minimum of six months' wages for employees who have at least two years' service in addition to any severance pay due. This damage award can increase when an employee's particular circumstances are taken into account. Thus, regarding the minimum amount due in cases of unfair dismissal, economic and personal motives are identical.

3.2 Institutional context and strategic behavior

Regarding the literature discussed above, the key elements driving the choice of employers seeking cost minimization are to be found in the consequences of unfair dismissal.

There are very few empirical analysis dealing with the effective amount paid to workers.[9] On the one hand, in France, workers litigate more often in cases of personal dismissal (for example, in 2007, approximately 20% of personal dismissals were brought to court, whereas this rate was approximately 2% for individual economic dismissals; see Serverin and Valentin 2009).

On the other hand, it seems less difficult to demonstrate the motive of a personal dismissal than an economic dismissal. Poor job performance such as the workers' failure to achieve performance goals[10] is an example of sufficient grounds for personal dismissal. Evidence for economic dismissals is easy to provide with regard to the *reality* aspect of the motive but is more demanding in terms of *seriousness*, especially for large firms.[11]

Therefore, with the empirical elements available, the category of dismissal that might minimize the sum of the various types of costs associated with a dismissal (severance payments and damages and procedures) cannot be assessed. However, if this substitution strategy is at the heart of the choice between the two motives of dismissal, then the legal provisions, which state the division into personal and economic dismissal, should exert almost no influence. Moreover, if this strategy is prevalent, then the determinants of the probability of dismissing a worker for

[7] An example of a tenure of more than 10 years can be useful: an employee with 20 years of service who is dismissed is entitled to 5.33 months of wages if the motive given is economic and 2.67 months if the motive is designated as personal.

[8] Collective agreement at the level of the branch can state a larger amount for severance payment, but this applies rarely and mainly for executives.

[9] Regardless of motive, the amounts are considered modest. The OECD annex for calculating the EPL index estimated that the average unjust dismissal award in 2008 for a French employee with twenty years of service was approximately sixteen months' pay. A 2003 study found that a typical severance award for a forty-year-old white-collar employee earning €30,000 (US$43,924.64) per year who was laid off after ten years of service was €7,187.94 (US$10,529.27) – less than one-half of the €16,047.80 (US$23,507.67) average payment to similarly situated employees in the EU as a whole (example from Estreicher and Hirsh 2013).

[10] However, this motive has been less accepted in court after a change in case law in 2004.

[11] This also implies that the employer must provide information on the economic situation of the firm, information that can have implications with regard to shareholders or competitors.

a firm should be the same regardless of the designation chosen. Thus, the hypothesis to be tested concerns the uniqueness of the model of dismissal decision, with its alternative being that the factors linked to the decision underlying a personal dismissal are different from those correlated with economic dismissal.

4 Data

4.1 Database and dependent variables

The data used in this empirical study come from two sources:

- the *DMMO* (monthly declarations of workforce movement) of the statistical service of the Ministry of Labor (Dares). This source gathers information on worker movements (entries and exits) from establishments of 50 employees or more in metropolitan France;
- the *EAE* of the French National Institute for Statistics (INSEE), replaced in 2008 by the *Esane*. This source is an annual survey at the firm level that details profit and loss accounts – excluding the financial part[12] – for any company with 20 employees or more.

Using the company's identifier, we matched these two sources and obtained a database of companies with at least 50 employees for the period 1999-2009, including human resource management and economic performance indicators computed for each two successive years where growth rates were needed. Two reasons explain the fact that 2009 is the last year studied: i) the lack of access to data after this date; and ii) the introduction in mid-2008 of a new open-ended contract termination regarded as a mutually agreed upon separation (*rupture conventionnelle* in French), the success of which in the subsequent years could blur the analysis. Other choices on the sample of companies were made. In terms of sectors, first, we excluded non-market sectors and agriculture (which are traditionally not well represented in this type of data) as well as the sector of financial activities because of its specificity with regard to performance indicators. The sample was also restricted to single-establishment companies;[13] otherwise, the economic situation would not correspond to the scope of the dismissal decision. Finally, as noted in the introduction, companies that proceed to a collective dismissal were removed. Depending on the year, this exclusion reduced the sample size from 0.6% to 2%, contingent on the state of the French economy.
Finally, the last step in constructing the sample was to pool the yearly databases to obtain an unbalanced panel of companies present during least two years between 1999 and 2009.

The final sample includes between 5,906 and 7,389 companies, depending on the year (Appendix 1). Due to the matching of the two data sources used and the choice of scope of the

[12] More precisely, the *EAE-Esane* does not detail the financial part of the profit and loss accounts of companies or their balance sheet.
[13] In France, a company can have several establishments.

study, this sample is not representative of French companies. The distribution of companies by year shows an over-representation of industry. Between 44% and 54% of the companies belong to this sector, whereas today, less than 10% of French companies belong to industry. In contrast, the service sector is under-represented (38-47%). This structure changes over the period studied, and the service sector is becoming more important. This specificity, partly inherent to the size of the firms, will be taken into account in the analysis of the results.

Regarding the companies' size, the sample includes companies with at least 50 employees and mainly between 50 and 249 employees (90%). The size distribution remains stable over the period.

Finally, the dismissal practices are captured through the use of at least one dismissal during the year. These dummies are the dependent variables in the econometric model. Each year, there is a larger proportion of dismissals for personal (64-73%) than for economic reasons (7-11%, with a peak of 15% at the time of the crisis in 2009).

4.2 Variables to test the hypothesis

The hypothesis to be tested is what we call the uniqueness of the model of dismissal, meaning the absence of specificity of the determinants of each dismissal in contrast to the statutory dispositions that set personal and economic motives in opposition. The potential difference between personal and economic motives should manifest through the link of each type of dismissal to the economic conditions of the firm. The most important set of variables at stake is thus the economic indicators. Many different indicators are used in the literature that deals with the statistical link between economic indicators of a firm's activity and economic dismissals, generally downsizing (e.g., Reynaud 2012 for France; and Datta et al. 2010 for a literature review). The choice made here between alternative indicators of the economic conditions of the firm mainly rests on the law of August 8, 2016, known as the "Labor Law." This law gives three criteria that can be used as grounds for a fair economic dismissal: turnover, economic profitability and financial conditions. The data used do not provide information with regard to the financial situation of the firm; thus, this set of variables is restricted to the characterization of turnover and profitability (level and annual evolution). The first indicator is the ratio of the current result before tax[14] to turnover. It takes into account both the operating profit of the company and the financial result but does not include provisions, depreciation and charge transfers that distort the current result.[15] The turnover denominator in this indicator is used to take into account the size of the firm. All other indicators are built on growth. To allow nonlinear influence of the yearly growth rate of turnover, this variable has been discretized into two modalities – negative or zero and positive – while the profitability evolution is approached

[14] According to the accounting definition, the current result before tax is equal to the operating profit plus the financial result plus joint operations (allocated profit) and minus joint operations (loss supported).

[15] It also makes it possible to restrict the endogeneity bias that might appear if the severance payments to be paid or to be provisioned were deducted from the result.

through an indicator crossing the evolution of the growth rate for net profit[16] with its level the year before. This variable is discrete with four modalities: positive in *t*-1 and increasing between *t*-1 and *t* (reference category in the regression), positive in *t*-1 and decreasing between *t*-1 and *t*, negative in *t*-1 and increasing between *t*-1, and negative in *t*-1 and decreasing between *t*-1 and *t*. This condition makes it possible to split firms which undergo bad conditions (negative net profit) into two categories: the one facing better conditions (reducing their lost) and those which cope with worse conditions. Moreover, it fully takes into account the economic conditions of being profitable but in a context of difficulty (which could refer to the preservation of competitiveness at stake in case law statements regarding economic dismissal).

A second set of variables is introduced to further examine the lack of specificities between the two types of dismissal. These variables give insights on employers' human resources policies. The idea is that under the assumption of a unique model of dismissal, employers' choice of human resources practices should reflect identically on both types of dismissal. Conversely, if personal dismissals, as stated by the law, mainly reveal how employers react to employees' misconduct or poor performance, then the practice of personal dismissal could be seen as one among multiple features of human resource management that indicate how intensely the company intends to retain its workforce (see Batt and Colvin 2011 for a study of how employers use human resources practices to achieve their goals; and Osterman 1987 for a view of turnover rate "as a strategic variable" to manage workforce diversity in ages and qualifications). In our data set,[17] only two types of variables can be used for this purpose: the other types of exits observed in the firm (end of fixed-term contract rate, quit rate, retirement rate) and the level of payroll per capita. For the variables that characterize workforce turnover, we expect a stronger link to these variables for personal dismissal than for economic dismissal. A positive coefficient would manifest the investment on the employment relationship, employers being more reluctant to dismiss workers who have received training and have accumulated specific human capital. However, a negative link could be expected when a human resources strategy results in a turnover rate target. In such a case, employers are less reluctant to dismiss workers when the number of quits, retirements, and ends of fixed-term contracts are low. For each type of exit, we build the ratio of their number in the average workforce number. The same line applies for the variable that relates the total payroll to the total number of workers in the firm (payroll per capita): a negative link between this wages *proxy* and dismissal is expected as a sign of the intensity of employers' commitment to their workforce. According to efficiency-wage theory, employers can retain their employees by paying above-market wages. This response could even be interpreted as the result of employees' behavior. This interpretation is the way Cappelli and

[16] According to the accounting definition, net profit (the profit or loss of the year) is the difference between the income and expenses for the year. More precisely, it is equal to the current result before tax plus extraordinary results and minus income taxes and employee participation in the results of the company.

[17] As a reminder, the data used deal with worker flows and firms' economic activity. Henceforth, the data do not contain information on workers' seniority, individual performance, etc. Moreover, our data do not provide information on the existence of union representatives in the firm or, more generally, variables characterizing work organization.

Chauvin (1991) and Klaas et al. (1998) use efficiency-wage theory to ground this link: better wages result in employees engaging in less shirking, which should reduce disciplinary problems that lead to dismissal. Thus, as we look at payroll per capita as a *proxy* of the intent to retain workers through higher wages, we control for this indicator by *proxies* of the structure of the firm's workforce in terms of qualification and age.[18]

Finally, other control variables are introduced in the model in addition to the *proxies* reflecting the structure of employment by qualification and by age already described: firm size (in 3 modalities) and sectoral contexts. For these latter variables, in addition to the sector itself, a market power variable is constructed to take into account the position of the company in its sector while also taking into account the size of the sector.[19]

The main issue rests on the differences in the significance level and the sign of the coefficients between the two types of dismissal.

5 Econometric analysis

5.1 Model

We empirically estimate the factors influencing personal and economic dismissals, taking into account both the possible interdependency between these two types of decisions and any unobserved heterogeneity in our unbalanced panel data. In this framework, the unobserved heterogeneity can reflect particular management behaviors related to employers' beliefs and social representations, for example. In an attempt to control for the correlation between the independent variables and the individual specific effects, we follow Mundlak (1978) by including the time averages of all time-varying exogenous variables.[20]
The model used is thus a bivariate random effects probit with Mundlak correction. Consistent with the hypothesis tested, the specification is identical for the two equations of the model, that is, for each type of dismissal (Greene 2011).

[18] The *DMMO* source does not provide information about the stock of employment by qualification, age or sex. These *proxies* are calculated from the structure of the job flows in each firm. For example, the share of movements by managers indicates the ratio of the number of entries and exits of managers to the total number of entries and exits in the firm, excluding transfers and CDDs. We thus assume that companies with a high turnover rate of managers also employ mainly managers.
[19] This variable is constructed as the difference between the market share and the number of companies per APE (main activity of the company), the market share reporting the turnover of the company to the sum of the turnover of the APE to which the company belongs. This variable was calculated in the *EAE-Esane* database before any transformation and matching with the other database.
[20] In the case of discrete variables, the use of a fixed-effects model raises the problem of the incident parameters, which prevents the convergence of the estimation. The Mundlak method (1978) overcomes this problem, as suggested by Greene (2011).

The model is as follows:

$$\begin{cases} Y_{1it}^{*} = X_{1it}\alpha_1 + Z_{1i}\gamma_1 + T_{1it}\delta_1 + \varepsilon_{1it} \\ Y_{2it}^{*} = X_{2it}\alpha_2 + Z_{2i}\gamma_2 + T_{2it}\delta_2 + \varepsilon_{2it} \end{cases}$$

$$\text{with } Y_{jit} = \begin{cases} 1 & si\ Y_{jit}^{*} > 0 \\ 0 & sinon \end{cases}$$

where Y_{1it}^{*} and Y_{2it}^{*} are unobservable latent variables and describe what could be called the *dismissal propensities* for personal and economic reasons, respectively, for each company i in period t; and Y_{jit} is the dependent variable, which corresponds to what is observed: the fact that a company *i* used a personal dismissal (*j*=1) or an economic dismissal (*j*=2) at least once in the year. X is a vector of time-varying variables, Z gathers the control variables (sector and size firm) that are constant over time, and T_{ijt} are year dummies.

The following temporality is considered: dismissal decisions are made based on the evolution of the economic indicators compared to the previous year; the level of the ratio of the current result before tax to turnover is taken at *t*-1, while the growth rates of economic variables correspond to the evolution between *t*-1 and *t*. Thus, as the characterization of the economic situation is based on the growth rate of economic variables, the *t*-indexes refer to the date of dismissal (*t*=2000,..., 2008, 2009). The other types of exits – the end of fixed-term contract rate, retirement rate and quit rate variables – are considered at the current period to take into account their interrelation in the determination of dismissal in line of the hypothesis of a turnover target (see above).

Finally, ε_{jit} is the error term for each equation, which decomposes into two terms: u_{ji} refers to the individual random effects (unobserved heterogeneity), and v_{jit} refers to the usual error term, such that (Greene, 2011):

$$\varepsilon_{jit} = u_{ji} + v_{jit}$$

$$\text{with } \begin{pmatrix} u_{1i} \\ u_{2i} \end{pmatrix} \sim Normal\left[\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_1^2 & \sigma_1\sigma_2\rho_u \\ \sigma_1\sigma_2\rho_u & \sigma_2^2 \end{pmatrix}\right]$$

$$\text{and } \begin{pmatrix} v_{1it} \\ v_{2it} \end{pmatrix} \sim Normal\left[\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix}\right]$$

with:

$$Cov(u_{1i}, u_{2i}) = E(u_{1i}, u_{2i}) = \sigma_1\sigma_2\rho_u, \quad j = 1,2$$

$$Cov(v_{1it}, v_{2it}) = E[v_{1it}, v_{2it}] = \rho$$

$$Cov(\varepsilon_{1it}, \varepsilon_{2it}) = \sigma_1\sigma_2\rho_u + \rho$$

The correlation coefficient ρ_u refers to the correlation between the permanent use (invariant over time) of the two types of dismissal, whereas the correlation coefficient ρ indicates the existence of an idiosyncratic component of interdependence between the two types of dismissal. Mundlak's (1978) approach introduces the group means of the time-varying variables into the equation. Then, the individual random effects u_{ji} decomposes as follows:

$$u_{ji} = \bar{x}_{.j}\delta + \vartheta_j$$

5.2 Results

The results of the estimation are presented in Table 1. The main result is the existence of two different models of dismissal for personal and economic motives, in the sense that the factors with which they correlated are mainly different.[21]

This finding appears in the links between the indicators characterizing the economic condition of the company and economic dismissal. Highly significant links between economic variables and economic dismissal emerge from the regression: companies in economic difficulties are more likely to use economic dismissal and even as the scope of the study is restricted to individual dismissal. More precisely, the higher the level of the ratio of the current result before tax to turnover in *t*-1 is, the lower the probability of dismissal for economic reasons in *t*. In the same line, this probability is positively and significantly correlated with a negative or zero turnover growth rate. Moreover, the likelihood that economic dismissal is used will be higher when net profit is negative in *t*-1, whether it increases or decreases between *t*-1 and *t*, as though the level of net profit mattered more than its evolution.[22] These results of a defensive response to lower economic performance by using economic dismissal support Reynaud's (2012) findings on French firms, although Reynaud's study did not deal specifically with the use of economic dismissal but with employment reduction in a more general way.

These results seem thus consistent with the legal provisions for the economic dismissal designation. To enable an economic interpretation of these coefficients, we have computed marginal effects of the variables for each equation (see Appendix 2). If the marginal effect of the ratio of the current result before tax to turnover in *t*-1 on the probability of economic dismissal seems low,[23] those for turnover growth rate and net profit variables appear important. Indeed, for the turnover growth rate, a change from 'positive' to 'negative or zero' increases the probability of economic dismissal by 3 percentage points (3.0065 exactly). Considering that the average proportion of economic dismissal over the period 1999-2009 is 11%, this marginal effect is strong. The same conclusion applies to the net profit variable and the changes from 'positive in *t*-1 and increasing between *t*-1 and *t*' to 'negative in *t*-1 and increasing between *t*-1

[21] Another result concerns the role played by unobserved heterogeneity in employers' dismissal behaviors: the share of the variance of the error term due to unobserved heterogeneity constant over time is approximately 25% in both motives (Table 1).

[22] However, this is partly because the influence of the evolution indicator has been constructed as binary.

[23] If the ratio of the current result before tax to turnover in *t*-1 increases by one unit, the probability of economic dismissal decreases by 0.0466 percentage points (Appendix 2).

and *t*' (+ 4.914 percentage points) and 'negative in *t*-1 and decreasing between *t*-1 and *t*' (+ 6.0640 percentage points).

In contrast, such significant correlations do not appear in the case of personal dismissal, except for the turnover growth rate variable. However, if the ratio of the current result before tax to turnover and net profit do not appear to influence the use of personal dismissal, a negative or zero turnover growth rate is positively correlated with the probability of using personal dismissal in the same way for economic dismissal. The marginal effect associated is approximately 2 percentage points (Appendix 2) and still appears weaker than that of economic dismissal, especially in regard to the average proportion of personal dismissal over the period 1999-2009, which is higher (69.5%). This link may indicate that the strategy consisting of designating an economic motive as personal dismissal can be somewhat at stake but modestly. Another explanation relies on the development in France, at the beginning of the 1990s, of new managerial practices. Specifically, the increase in management by objectives could link individual performance to companies' economic conditions. These practices build a bridge between the two types of dismissal. Typically, poor job performance, such as the failure to achieve goals set during the performance appraisal interviews or incompetence, is a personal dismissal motive that can be connected to the economic conditions of the company.

The difference between the two models of dismissal also appears in the links with the second set of variables, i.e., the other types of exit movements and payroll per capita. Indeed, we observe that the higher the quit rate is, the higher the probability of implementing a personal dismissal. Similarly, the higher the payroll per capital (in log) is, the lower this probability: when the payroll per capita increases by 1%, the probability of personal dismissal decreases by -4.9062 percentage points (see Appendix 2). Both results support the hypothesis of the propensity to avoid dismissals being one feature characterizing the intensity of the employers' commitment to their workforce. This negative link between dismissals and wage is consistent with Klaas et al. (1998). The positive (and significant) sign of the coefficient for the correlation between the two types of dismissal, ρ_u, can be interpreted following this line: the probability of dismissal for one motive is positively linked to the probability of dismissal for the other motive.
In contrast, no correlations with the quit rate or end of fixed-term contract rate are observed for economic dismissal. The only correlation with economic dismissal is the retirement rate. Moreover, payroll per capita is not significantly correlated with economic dismissal.

Finally, the way employers use personal dismissal is a feature of human resource management: it is one of the elements that displays labor market dualization. Some firms seek a long-term labor relationship, while others search for flexibility, for different reasons (Doeringer and Piore 1971; Berger and Piore 1980). The propensity to proceed with economic dismissal might be influenced by the companies' location in the division between the primary and secondary

sectors, as reflected in the retirement rate and the correlation between the two types of dismissal. This is less valid for economic dismissals which appear to be determined more by economic circumstances, as we saw previously. However, extensions of these early works of segmentation theories developed to take into account the segmentation of the workforce within firms (e.g., Osterman 1982). Within the primary sector or market, a segment of permanent workers and a segment of temporary or contract workers can coexist. This joins the approach in terms of "core"/periphery (e.g., Atkinson, 1984). In line with this approach, a substitutability could thus emerge between the use of dismissals (in particular for economic reasons) for the workers of the primary segment and the use of fixed-term contracts for the workers of the secondary segment, to the extent that fixed-term contracts can play a buffer role in case of a negative shock allowing a greater stability of the employment of the "core". Used as a *proxy* in our model by the end of fixed-term contract rate variable, there is no specific correlation between fixed-term contract and dismissals whatever the motive.

Table 1 Results of the bivariate random effects probit model with Mundlak correction

	Personal dismissal	**Economic dismissal**
	Coef.	*Coef.*
TIME-VARYING VARIABLES		
Current result before tax / turnover (in *t*-1)	0.0000	-0.0033***
Turnover growth rate		
Negative or zero	0.0728***	0.2137***
Positive	*Ref.*	
Net profit		
Negative in *t*-1 and decreasing between *t*-1 and *t*	0.0909	0.4309***
Positive in *t*-1 and decreasing between *t*-1 and *t*	0.0065	0.0251
Negative in *t*-1 and increasing between *t*-1 and *t*	0.0751	0.3492***
Positive in *t*-1 and increasing between *t*-1 and *t*	*Ref.*	
Log of payroll per capita (in *t*-1)	-0.1611*	0.1430
End of fixed-term contract rate (in *t*)	-0.0004	-0.0007
Quit rate (in *t*)	0.0058*	-0.0038
Retirement rate (in *t*)	0.0005	0.0229**
Market power (in *t*-1)	0.0143	0.0010
Distribution of movements excluding transfers and CDD movements by occupation (in *t*-1)		
Managers	-0.0000	0.0007
Intermediate professions	0.0000	0.0014
Employees	-0.0004	-0.0003
Workers	*Ref.*	

Distribution of movements excluding transfers and CDD movements by age (in *t*-1)		
Young persons (less than 30 years old)	0.0009	-0.0026***
30-49 years old	0.0004	-0.0007
50+ years old	*Ref.*	
TIME-CONSTANT VARIABLES		
Sector		
Industry	-0.2543***	0.2695***
Construction	-0.1224**	-0.2574***
Retail	*Ref.*	
Other market services sector	-0.0768**	0.0784*
Firm size		
50-99 employees	*Ref.*	
100-249 employees	0.5273***	0.1137***
250 employees or more	1.2107***	0.2228***
TIME/YEAR VARIABLES		
Year 2000	*Ref.*	
Year 2001	0.0773	0.0111
Year 2002	0.1687***	0.0618
Year 2003	0.2144***	0.0799
Year 2004	0.2674***	0.0332
Year 2005	0.3273***	0.0472
Year 2006	0.2655***	-0.0531
Year 2007	0.1785***	-0.1725***
Year 2008	0.2538***	-0.2858***
Year 2009	0.0574	0.1008*
OTHERS		
Constant	-0.5693***	-2.5636***
Share of the variance of the error term due to unobserved heterogeneity constant over time (calculated as $\frac{\sigma_j{}^2}{(1+\sigma_j{}^2)}$)	0.2463	0.2515
ρ_u: correlation between the permanent use (invariant in time) of the two types of dismissal	0.2110***	
ρ: idiosyncratic component of the interdependence between the two types of dismissal	0.0112	
Number of observations	68 433	68 433

Significance level: *** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.
Scope: companies of 50 workers or more from the market sector excluding agriculture and financial activities.
Sources: DMMO (Dares) and EAE-Esane (INSEE).
Note: the Mundlak coefficients (group means of the time-varying variables) are not included in the table but can be obtained from the authors upon request.

5.3 Discussion

Thus, the results of the estimation do not support the hypothesis of a single model of dismissal. Apart from the control variables, the two types of dismissal are dissimilar: it is quite clear for the model of economic dismissal, but less for the personal one in particular due to relevant missing variables (see below). The only variable in common is the growth rate of turnover, which exerts a negative influence on the two probabilities of dismissal but not with the same intensity. The dissimilarities in the factors linked to each type of dismissal seem to show that employers take into account the difference in nature of the two types of dismissal in accordance to their statutory bases. As grounded on structural econometric methods, this result does not imply that substitution between personal and economic dismissal never takes place but only that the legal framework substantially influences these behaviors. Moreover, the analysis is restricted to individual dismissals, and we do not exclude substitution behavior from employers between collective economic dismissals and the other types of termination (personal dismissal, mutually agreed termination, retirement termination, etc.).

This result differs from the one obtained by Garcia-Martinez and Malo (2007), which provides evidence of an important substitution behavior between economic and personal dismissal. Although the data (grounded on a regional rather than firm level), the context (Spain) and the empirical strategy are quite different, the question arises on the factors that could explain why employers seem to mainly integrate the legal framework in France, whereas Spanish firms appear to mainly choose the type of dismissal strategically. The first interpretation would be that, in France, this strategy is not worthwhile due to very small differences in expected cost between the two types of individual dismissals. We have explained above, first that the potential cost difference between the two grounds should depend on the expected amount of damages, and second how difficult it is to assess this difference: dismissals for personal motives are more often brought to court, while dismissals for economic motives are more complex to evidence. The second interpretation would be that the difference in the use of individual economic and personal dismissals could rely on the legal framework itself. One of the reasons is that this framework is partly a co-production of both employers and employees through a rich process of construction of case law. Case law in labor law is the result of interactions between the Social Chamber of the French Supreme Court (*Cour de cassation*), its Criminal Chamber, and the State Council (*Conseil d'Etat*). The strategic use of appeal to the competent court by both employees' and employers' unions, and by individual workers, results in an important activity of adapting, transforming and structuring labor law. This process contributes to assessments of the meanings and the intent of the law for trial judges and litigants. This activity is extensively commentated by the doctrine, lawyers and unions. In this way, French case law is sometimes considered as the liveliest and best built part of French labor law (Supiot 1994). We believe that this could play an important role in the explanation of the importance of firms' compliance with the legal framework in the designation of dismissals, which is ultimately summarized by the main result of our econometric model.

Alternative explanations could be discussed, including those concerning the presence of trade unions and social pressure (through the media for example), which can play the role of guardian of the appropriate application of the labor law. Nevertheless, the influence of unions on dismissals takes place mainly for collective dismissal specifically during the building of the "*job preservation plan*", which we do not take into account in our framework. However, unions can play a (small) part in individual dismissals, as employees can be accompanied during the interview during which the employer explains its rationale for the dismissal and gives the employee an opportunity to respond, but this certainly plays only a minor role in the explanation of our result. In the same line, the role that social pressure could play would initially concern collective dismissals, and moreover, it cannot be assessed here.[24]

6 Conclusion

The aim of this article is to contribute to the literature on strategic behavior regarding dismissals by analyzing the factors influencing the two types of legal dismissals, economic and disciplinary, using appropriate data. This approach was intended to allow us to assess potential deviations from the *law on the books* through empirical factors associated with employers' dismissal designation. For this purpose, the hypothesis tested could appear simple: if the factors influencing the probability of economic and personal dismissals were the same ("*uniqueness of the model of dismissal*"), strategic behavior on the part of employers could be confirmed; if these factors appeared to be different, such a hypothesis could not be supported. Finally, the results expressed the fact that strategic behaviors are not very frequent or, at the least, that these strategies are not very far from the statutory provisions in the French case.
Nevertheless, some relevant variables are missing to plainly understand the differences in the use of economic or personal dismissal, and to identify all the specificities of each model of dismissal (for example, the presence of individual sanctions and characteristics of the work organization, mainly for personal dismissal, and the presence of union representatives in the firm and financial indicators, for economic dismissal). This is a matter of data availability. We have also restricted the field of this study to firms of 50 employees or more and to individual dismissal. However, beyond these limitations, one can see a wide range of possibilities to continue this work on the French case, and primarily on the leeway for firms to avoid collective dismissals by using alternative types of contract termination. Therefore, this article should be seen as an attempt to contribute to the discussion on EPL provisions for the French context, relying on observed behaviors to supplement dismissal cost estimation (Freyens 2010).

Beyond these considerations, this article also illustrates the relevance of studying EPL rules by the way they affect – and are affected by – the behaviors of employers. This is all the more

[24] The role played by social pressure on dismissals has been estimated in a recent article on French data: see Bassanini et al. (2017).

important in a context of recurrent changes in recent years of these legal rules in French law (2008, 2013, 2016 and 2017). However, these laws are not preceded by such studies and little is known about their possible consequences before they are implemented.[25] Moreover, constantly changing the legal framework does not allow the actors – mainly the employers – to appropriate and use it as it has been defined (Garcia-Martinez and Malo 2007), which finally appears to be the real source of uncertainty.[26]

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[25] However, there is an obligation to make an "impact assessment" for any new bill since 2009 in France, but these assessments seem in fact not very informative and do not assess empirically the possible effects of the bill.
[26] The possibility, especially for employees, to bring the case before a court and thus to have to pay an additional cost in case of unjust dismissal.

Appendix 1: Descriptive statistics of the sample

Year In %	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
Sector										
Industry	54	53	52	49	49	49	49	47	44	44
Construction	8	8	8	8	8	8	8	9	9	9
Retail	15	16	15	17	17	18	19	19	18	19
Other market services sector	23	23	25	26	26	26	24	25	29	28
Firm size										
50-99 employees	50	51	51	52	53	53	54	54	53	52
100-249 employees	40	39	39	38	37	37	36	36	37	37
250 employees or more	10	10	10	10	10	10	10	10	10	11
Has implemented at least one dismissal during a year:										
Personal dismissal	64	67	69	71	72	73	71	69	71	66
Economic dismissal	11	11	12	13	12	12	11	9	7	15
Current result before tax / turnover (in *t*-1)	5.2	3.4	3.6	3.2	3.3	3.8	3.5	3.4	4.2	3.6
Net profit										
Negative in *t*-1 and decreasing between *t*-1 and *t*	6	8	7	8	7	8	7	7	9	4
Positive in *t*-1 and decreasing between *t*-1 and *t*	38	39	43	44	41	44	39	37	21	69
Negative in *t*-1 and increasing between *t*-1 and *t*	14	14	13	13	15	13	15	13	8	18
Positive in *t*-1 and increasing between *t*-1 and *t*	41	40	37	34	37	36	40	43	62	9
Turnover growth rate										
Negative or zero	27	32	43	44	36	36	32	28	37	71
Positive	73	68	57	56	64	64	68	72	63	29
Market power	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.8	0.8
Log of payroll per capita (in *t*-1)	3.4	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.7	3.7
Mean of the rate of:										
Fixed-term contracts	13.3	12.7	12.7	13.2	13.8	13.8	13.6	13.8	13.6	14.6
Quits	7.8	7.4	6.1	5.6	5.4	5.3	5.6	6.2	6.0	3.6
Retirements	0.7	0.5	0.5	0.6	1.3	1.0	1.1	1.1	1.1	0.8
Distribution of movements excluding transfers and CDD movements by occupation (in *t*-1)										
Managers	12	12	13	13	14	15	15	16	16	16

Intermediate professions	15	15	15	15	15	15	16	15	15	15
Employees	16	18	18	19	19	19	19	19	20	20
Workers	49	52	51	49	48	47	47	47	47	46
Distribution of movements excluding transfers and CDD movements by age (in *t*-1)										
Young persons (less than 30 years old)	41	44	44	42	40	38	38	37	38	37
30-49 years	40	43	44	44	44	43	45	45	45	45
50+ years old	17	10	9	11	12	15	15	15	15	17
Number of companies	5906	6624	6871	6829	7020	7210	7101	6761	7389	6722

Scope: companies of 50 workers or more from the market sector excluding agriculture and financial activities.
Sources: DMMO (Dares) and EAE-Esane (INSEE).

Appendix 2: (mean of individual) Marginal effects of the main variables associated of estimation of the bivariate random effects probit model with Mundlak correction

	Personal dismissal	**Economic dismissal**
	Coef.	*Coef.*
Current result before tax / turnover (in *t*-1)	0.0008	-0.0466***
Turnover growth rate		
Negative or zero	2.2167***	3.0065***
Positive	*Ref.*	
Net profit		
Negative in *t*-1 and decreasing between *t*-1 and *t*	2.7688	6.0640***
Positive in *t*-1 and decreasing between *t*-1 and *t*	0.1970	0.3530
Negative in *t*-1 and increasing between *t*-1 and *t*	2.2874	4.9140***
Positive in *t*-1 and increasing between *t*-1 and *t*	*Ref.*	
Log of payroll per capita (in *t*-1)	-4.9062*	2.0122
End of fixed-term contracts rate (in *t*)	-0.0130	-0.0101
Quit rate (in *t*)	0.1753*	-0.0529
Retirement rate (in *t*)	0.0149	0.3225**

Significance level: *** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.
Scope: companies of 50 workers or more from the market sector excluding agriculture and financial activities.
Sources: DMMO (Dares) and EAE-Esane (INSEE).
Note: It is the average of the individual marginal effects that is calculated here. It can be interpreted for example for the turnover growth rate as this: a change from 'positive' to 'negative or zero' in the turnover growth rate variable increases the probability of economic dismissal by 3.0065 percentage points.

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