Are Judges Biased by Labor Market Conditions?

The Selection of Firing Litigations for Trial in an Italian Firm *

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Abstract

When a firing litigation is taken to court, only the characteristics of the employee's misconduct should be relevant for the judge's decision. Using data from an Italian bank this paper shows that, instead, local labor market conditions influence the court's decision: the same misconduct episode may be considered sufficient for firing in a tight labor market but insufficient otherwise. We reach this conclusion after taking carefully into consideration the non-random selection of firing litigations for trial. Although these results refer to the specific situation considered, they raise more general issues. For macroeconomists they suggest that higher unemployment rates may increase firing costs via the effect on courts' decision criteria; thus, the real extent of firing rigidities cannot be assessed without considering the role of courts. For labor law scholars, these findings are important because, following traditional principles, the law should be applied in the same way for all citizens and over the entire national territory.

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1 Introduction

The nature and relevance of firing regulations in the labor market differ sharply across countries, as recent surveys show (OECD, 1999). The first ground to evaluate these rigidities lies in the laws which specify the rights, duties and constraints that the employer and the employee must respect when dealing with a firing decision. However, the law is only one important component in the whole story, because, when a fired worker files the case in a court, the effective judicial enforcement of such rules plays a crucial role as well. From this viewpoint, it is important whether the statements of the law define a narrow grid of prescriptions which call for an almost automatic and mechanic decision by the judge, or if they are very general, leaving room for a wide range of possible interpretations. The role of judicial enforcement is much more relevant in this latter case, since the headings under which a firing decision can be taken must be filled with the interpretation prevailing in the jurisprudence and with the discretion left to the judge, who can confirm or overrule the firm's decision. The degree of effective labor market rigidity can therefore be assessed only when enforcement is considered together with the legal framework.

This simple premise has relevant implications both from a law and economics and from a macroeconomics perspective. If a worker files a firing decision before the judge, the latter will compare the specific nature of the case with some legal standard that summarizes his interpretation of the law, and will decide in favor of the firm or the worker. Hence, by considering the decisions of the judges, it may be possible to reconstruct empirically the criteria followed to enforce the firing regulation. However, as Priest and Klein (1984), Waldfogel (1995) and Eisenberg and Farber (1997) have stressed in different contexts, such inference must take into account that the cases reaching the judicial stage are not representative of the entire population of cases. In our situation, this selection bias derives from the fact that a case filed before the judge originates from a firing decision of the firm, which is followed by the choice of the worker to go to trial: these two previous steps are taken by the firm and the worker considering the likely outcome of the entire process, which depends on the nature of the case itself and on the judge's preferences. If, for instance, the judge were expected to be very favorable to workers, only the most serious cases would lead firms to fire a worker: but then, most of the (very serious) cases filed to the court would be confirmed by the judges, suggesting the (wrong) conclusion that they are favorable to firms. Hence, an empirical evaluation of judges' preferences must take into account this bias, and possibly try to reconstruct the whole selection process and not only the final judicial stage.

Assessing judges' decision criteria seems particularly relevant, from a macroeconomic point of view, if the legal standard applied is in turn influenced by labor market conditions. The fact that higher unemployment rates may induce judges to be more favorable to workers in case of a firing litigation creates the conditions for a potential reversed channel of causation between unemployment and firing costs. It is well known that higher firing costs generate longer unemployment spells and may also increase unemployment levels if they reduce hiring more than they prevent firing, given wage rigidity.[1] But if at the same time higher unemployment rates increase firing costs via the effect on courts' decisions, a disturbing multiplicity of equilibria may arise: on the one hand, equilibria with low unemployment and low firing costs, because courts tend to decide in favor of firms; on the other hand equilibria with high unemployment and high firing costs, because courts tend to decide in favor of employees.

In our paper we want to investigate whether judges are biased by labor market conditions. Since our evidence is based on data from a large Italian firm, the answer is necessarily specific to the data set considered. However, the economic and methodological problems involved are perhaps worth some more general attention. Our empirical analysis is a good case study to address the question we are interested in: Italy is an interesting example of a very rigid legislation that leaves wide scope for judicial discretion in the enforcement phase; moreover, our company data allow us to reconstruct the entire selection process and not only to examine the cases brought to the attention of the judges.

We show that, because of the non-randomness of the selection process, more serious cases of misconduct go to trial in the regions where unemployment is higher. Therefore, if judges decided only on the basis of the quality of the case, the probability of a pro-worker decision should be lower in the same regions. We find, instead, the opposite result: judges are not less likely to decide in favor of workers where unemployment is high, despite the fact that more serious misconduct cases are brought in front of them. Therefore we conclude that worse labor market conditions induce judges to be more favorable to workers. We also discuss the extent to which our regional indicators of labor market conditions may capture other local environmental factors in addition to the unemployment level. The evidence, however, suggests that even if these other factors are likely to play a role, the relevance of the labor market cannot be dismissed.

This paper is organised as follows. Section 2 describes the data and gives an introductory statistical and institutional overview of the selection process that allows for some interesting preliminary conclusions. Section 3 presents a theoretical model of the selection process while Section 4 presents the evidence and discusses why it suggests that courts are biased by local labor market conditions. Concluding remarks follow in Section 5.

[1] The classic references are Lazear (1990), Bentolila and Bertola (1990), Bertola (1990). More recently, Acemoglu and Angrist (1998) and Oyer and Schaefer (1999) provide econometric evidence suggesting that employment protection laws can backfire against the group that the legislator would like to protect.

2 The structure of the selection process and the data

Italian Civil Law (st. n. 604/1966, sect. 3) foresees that individual firing is possible only under the following two headings:

1. *justified objective motive*, i.e. "for justified reasons concerning the production activity, the organization of labor in the firm and its regular functioning";

2. *justified subjective motive*, i.e. "in case of a significantly inadequate fulfilment of the employee's tasks specified by the contract".

While the first heading involves cases in which firing is originated by events that are independent of the employee's will, under the second one the dismissal is originated by the behavior of the worker.[2] But in all these cases it is evident that the law is open to a large range of possible interpretations concerning what has to be considered as a justified reason for firing. If Italy ranks in one of the first places among the OECD countries for the rigidity of firing regulations (see OECD, 1999), a crucial role must be played by courts which ultimately have to decide whether firms' firing decisions fall in one of the above two categories.

Virtually, firing costs are higher in Italy than anywhere else, because this is the only country in which, if firing is not sustained by a just cause falling under the above two headings, the firm is always forced to take back the employee on payroll and to pay the full wage that he/she has lost during the litigation period plus welfare contributions; in addition, the firm has to pay a fine to the social security system for the delayed payment of welfare contributions up to 200% of the original amount due.[3] But even such a draconian penalty for firing would be less relevant for all practical purposes if judges were more indulgent in considering the dismissals fair and thus legitimate. Therefore, the effective dimension of firing costs in Italy increases together with the propensity of judges to invalidate firms' firing.

As we argued in the introduction, to evaluate this propensity it is misleading to look only at the cases that appear in front of a judge, because these are not randomly

[2]In this paper we focus only on cases that fall under the second heading of the above classification, i.e. cases in which the firing decision is originated by some action taken by the employee and perceived as a misconduct by the firm. Individual firing for justified objective motive is very rare in Italy and never observed in our sample. Justified objective motives (like a recession or some idiosyncratic shock to firm revenues or costs) tend to lead to collective layoffs that are subject to a different process of evaluation on the part of judges and other public authorities. In any case, as argued in Ichino A. (1997), from an economic viewpoint the distinction between objective and subjective firing is far from obvious.

[3]For a description of the institutional details concerning dismissal regulations see Carabelli (1992) and De Roo and Jactenberg (1994); Ichino P. (1996) focuses more closely on the effective functioning of the sanctions system against unfair dismissal in Italy.

selected from the whole population of miscoduct episodes. When such an episode is brought to the attention of the personnel office, a sequence of binary choices taken by the firm and by the employee determines whether it will originate a firing litigation brought to a court for a final decision.[4] The sequence of these choices, which are regulated by collective agreements and by the Law, is the following.

First stage: When the episode is reported to the personnel office, the latter gives a notification of misconduct to the employee. After the notification, the employee has the opportunity to defend him/herself in front of the personnel office for five days and in this period no sanction can be issued. At the end of the five days the firm has to decide whether to fire him/her or to issue a less severe punishment (including the possibility of no punishment at all).

Second stage: Given firing, the employee has to decide whether to file the case in front of a court for unfair dismissal or not.

Third stage: Given the filing of the case, the court has to decide whether the firing decision is legitimate or not.[5]

In order to find data containing sufficient information to explore each stage of this selection process, we obtained access to the personnel files of a large Italian bank with branches in every province of the Italian territory and with a number of employees ranging from 17565 in 1979 to 18342 in 1995, with a peak of 19581 in 1984.

Over this period the bank issued 2043 letters of misconduct notification involving 1633 employees. The legal division of the personnel office kept a complete and reliable record of these documents and of the letters of punishment for the cases in which a sanction was issued. Starting from this archive we have reconstructed the history of each misconduct episode after notification. Since no case involving a female worker reached the trial stage, we focused only on the 1862 cases involving male workers.[6] Table 1 describes the selection process for these cases. Out of the original 1862 notification letters, 409 originated a firing decision by the firm, while less severe sanctions were adopted in the other 1453 cases. In 86 of the firing cases the employee decided

[4]It is also possible for both parties to appeal against the decision of the first court, in which case up to three other courts may be called to take a decision on the case. We will discuss below the implications of this possibility in our context.

[5]A settlement between the two parties is possible after filing; in our dataset there are 22 such cases. Generally (and in particular in the firm considered in this paper) these events are considered as losses for the employee. Therefore, in what follows we focus on employees' victories at trial defined as cases in which the court decides that the employee has to be reintegrated in his position; settlements after trial and *a fortiori* recognition of firing legitimacy are considered as losses for the employee.

[6]The proportion of females in the firm grew steadily from 11% in 1979 to 21% in 1995. Note that in our sample, the 181 cases involving females represent only 9% of the total number of cases. In 16 of these 181 cases the firm fired the worker and she accepted the firing.

to file suit against the firm for unjust dismissal, while in the remaining 323 cases the worker accepted the firing. Of the 86 trial cases, 3 are still unsettled, 69 were won by the firm and only 14 were won by the worker.

Note that, alltogether, in 17 years this bank fired only 425 employees (counting both males and females) out of a labor force of approximately 18000 units per year. This low firing rate is not matched by a high quit rate on the part of workers: in each year the global separation rate for all reasons has never been higher than 4% and the average tenure has grown from 12 years in 1975 to 17 years in 1995.[7] Although this firm is certainly not representative of the entire Italian labor market, mostly made up of small firms in which turnover rates are high, it gives a fairly representative image of the labor market faced by large enterprises in this country.

As we argued in the introduction, the low frequency of firing cases, together with the high frequency of firm's victory at trial, may be consistent with the view that judges are expected to be biased in favor of workers and that the uncertainty on their decision criteria is relatively low. In these conditions, the bank fires only when it is sure of its case and as a result, among the cases brought to court, the probability of a firm's victory is very high.[8]

An appealing feature of our data is that it contains a detailed description of the type and gravity of the misconduct episodes, which we obtained because the legal division of the personnel office gave us the possibility to access the letters of notification and of punishment. Although our testing strategy could be implemented even in the absence of any specific information on the type of misconduct episode originating the litigation, as we will see the availability of this information reduces the unobservable component of our specification and simplifies the modelling of the selection process.

Following the methodology described in Benvenuti (1997), each episode has been classified in a grid structured around 4 types of misconduct and 8 levels of gravity. The four types are:

1. *unjustified late arrival and absence episodes*;

2. *external violations*, i.e. actions taken by an employee outside the employment relationship with the bank, but potentially relevant for the latter (e.g. fraud, theft, drug smuggling, working activity in competition with the bank, dud cheques etc.);

[7] Bank jobs were and still are highly sought-after jobs in Italy.

[8] This interpretation is consistent with the theory of cases' selection for trial proposed by Priest and Klein (1984) and revisited by Waldfogel (1995). According to this theory a low trial rate is an indication that judges are biased and that the uncertainty concerning their criteria is low. This is because, quite intuitively, if the expected decision criterion of judges is strongly biased in favor of workers the firm will refrain from firing unless it is fairly confident of having a strong case. Only if the expectation of a bias in the criterion of courts were subject to substantial uncertainty the firm would dare to start a firing litigation despite the expected bias.

3. *internal violations*, i.e. violations of the internal regulations and technical proceedings of the bank (e.g. omitted controls on cheques or new accounts, irregular operations on the stock market, credit to unreliable customers, etc.);

4. *inappropriate behavior inside the workplace*, i.e. insubordination, improper clothing, violence or insults against colleagues, superiors or clients, sexual harassment etc.

This classification is primarily based on the content of each misconduct episode. The distribution of episodes across these four types is described in Table 2. Table 3 reports, instead, the distribution of episodes across the 8 gravity levels of the grid identified by Benvenuti (1997). This ordinal ranking of gravity, and the related classification of misconduct types described above, have been prepared and discussed in a series of interviews with members of the personnel office. For most misconduct episodes the classification into higher gravity levels was dictated by the nature of the misconduct type: for example, the length of the absence, the extent of debt exposure, the sum involved in the fraud etc. In other cases it has been left to the judgement of the personnel officers. The equivalence across types has also been established with the help of the personnel office and with reference to the criteria that were claimed to be relevant for 1995.

Since each notification may contain the description of multiple contemporaneous misconduct instances we decided to measure the overall gravity of the episode with the gravity of the most serious misconduct among those mentioned in the notification.[9] The characterisation of each misconduct episode is completed by the information concerning the existence of reminders to the employee aimed at inducing him/her to control his/her behavior in order to avoid the notification of misconduct. This event (named "repetition" in the tables) happens in 39% of the cases. The combination of the ordinal gravity indicator with the dummies for the types of misconduct and for the repetition, provides a very detailed characterisation of each misconduct episode.

We measure local labor market conditions with two variables. The first one is the unemployment rate in the administrative region in which the misbehaving employee is working in the year in which the misconduct episode is reported to the personnel office.[10] Table 4 shows that the variation of regional unemployment rates in the sample is quite large, ranging between 3.4% and 26.8% with an average of 10.9%. The table also shows that the southern regions[11] have on average higher unemployment rates than northern regions (18.5% against 7.9% in our sample). This feature reflects the

[9] We tried also the average gravity and the number of additional misconducts but they proved irrelevant.

[10] There are 20 administrative regions in Italy.

[11] The south is defined as the geographic area covered by the following administrative regions: Campania, Puglia, Basilicata, Calabria, Sicilia, Sardegna.

well-known worse labor market conditions of the Italian "Mezzogiorno". This suggests our second indicator which is a dummy taking value 1 if the employee works in a branch located in the south of Italy. 575 misconduct episodes (equal to 28% of the total) take place in the south and involve 439 individuals (27% of the total number of individuals reported for misconduct). The "south dummy" clearly captures more than just local labor market conditions. Finding that it affects judges' criteria certainly indicates that something is different in the southern environment, but the difference may go well beyond the labor market. It would be nice if we could include both variables together in our econometric analysis, in order to look at the effect of regional unemployment controlling for the "south dummy". Unfortunately the correlation between the two variables is high (0.8) and to avoid multicollinearity we have to use them separately. For this reason, in drawing conclusions from our results (see Section 4.3), we will discuss to what extent the "south dummy" is just capturing labor market characterisitics or other local characteristics as well.

Table 4 gives summary statistics also for other characteristics of the workers which we use in the empirical analysis. For comparison purposes the table reports the analogous statistics for the total number of employees in 1986 (i.e. the mid-point of the observation period).

3 A model of the selection process

A natural question that arises when dealing with settlements and trials is why the parties involved do not always settle, avoiding the wasteful judicial costs of going to court. The empirical literature on settlements and trials have modeled the basic problem in various ways, suggesting different explanations for the decision to go to trial. In a nutshell, suppose that party A and B can settle the case, with a payment s from B to A; if they disagree the case is filed to the judge, with judicial costs c_A and c_B respectively; a pro-A decision of the judge gives benefits w_A and costs w_B to A and B, in addition to payment s. Then, in order to accept the settlement, A will ask for a settlement at least as large as $s_A = p_A w_A - c_A$, while B will agree to settle if his payment is not larger than $s_B = p_B w_B + c_B$, where p_A and p_B are the probabilities that A and B assign to a pro-A judgement. A settlement is possible (Pareto improving) if $s_A < s_B$, i.e. if A's minimum request does not exceed B's willingness to pay. A case therefore will be brought to court, implying wasteful litigation, if this condition fails to hold, i.e. if $p_A w_A - p_B w_B > c_A + c_B$. This simple expression summarizes the main determinants of the decision to go to trial, which is more likely (ceteris paribus) if the litigation costs are lower, as stressed in Eisenberg and Farber (1997) or if party A is overoptimistic with respect to party B on a pro-A verdict, as assumed in Priest and Klein (1984) and Waldfogel (1995).[12] Finally, even with the same expectations, i.e. $p_A = p_B$, the parties can fail to find an agreement if the benefits and costs of the judgement are not limited to the pure transfer s and if A's benefit exceeds significantly B's costs, i.e. $w_A > w_B$.

Hence, there are many different ways to model the occurrence of a trial. Our modelling strategy reflects two concerns. First, we think that the main effects behind the selection process depend in our case on differences in stakes, determined by labor market conditions and individual characteristics. Although "divergent expectations" may also matter, this feature is relatively less important in our case because the same law firm assists the bank in all instances and workers typically receive legal advice from the same group of unions' lawyers. Second, since we want to test our model empirically, we need a relatively simple setup based on variables that can be observed. Therefore, the approach based on asymmetric stakes ($w_A > w_B$) seems the most appropriate to take into account the above concerns, and for simplicity in the sequel we will abstain from allowing for divergent expectations.

3.1 The game

The institutional features of the selection process described in the previous section allow us to define the following sequential game structure. We consider three sets of players involved, the firm (f), the worker(s) (w) and the judge(s) (j). The timing of moves reflects the steps described above, as given by the procedure followed in our case study. Our game starts once a worker has received a notification of misconduct.

Assumption 1 (Timing of moves)

- t_1: *the firm decides whether to keep the worker (K) (possibly setting a minor punishment) or to fire him (F);*
- t_2: *if fired, the worker decides whether to accept the firing (A) or to go to trial (T);*
- t_3: *finally, if the case is filed, the judge confirms the firm's decision (C) or overrules it (O).*

Figure 1 shows the corresponding game tree and payoffs. Players' preferences are assumed as follows:

Assumption 2 (Workers' preferences)
Define $V_i^w(X, U)$ *as a worker's payoff of outcomes* $i = K, O, A, C$, *where* X *is the*

[12] This approach is known as the "divergent expectations" model of litigation. See Waldfogel (1998). For another theoretical model of the decision to appeal see Daughety and Reinganum (2000).

vector of a worker's personal characteristics and U is the unemployment rate. For any given X and U, the payoffs of the different outcomes are ranked as follows:

$$V_K^w > V_O^w > V_A^w > V_C^w.$$

A few comments are needed on workers' preferences. Workers are heterogeneous according to some personal characteristics (age, sex, etc.), and Assumption 2 states a general ranking that holds across individuals' payoffs in the different states. The game entails two different classes of outcomes for a typical worker: in A and C the worker is laid off and has to find a new job, while in K and O the worker remains in the firm. Assumption 2 states that the worker lexicographically prefers the latter situation (being in) to the former (being out). Moreover, given his position (in or out), he prefers to save the monetary and reputational costs of going to trial.

Regarding the effect of labor market conditions, a reasonable conjecture is that the worker's payoff when he/she is looking for a new job (A and C) is decreasing in the unemployment rate U: the higher the unemployment rate, the longer the search expected and the lower the payoffs in the two outcomes A and C. The relative ranking among them is further justified by the fact that, along the procedure described in the game tree, the negative signal attached to the worker becomes clearer and publicly observed after a sentence. Consequently, the search for a new job becomes increasingly difficult once the worker's misconduct is widely recognised. In the other outcomes, in which the worker remains in the firm (K and O), we still allow for an effect of labor market conditions but we have no prior on the sign.

We now turn to the firm's preferences.

Assumption 3 (Firm's preferences)
Define $V_i^f(X,U)$ as the firm's payoff of outcomes $i = A, C, K, O$, where X is the vector of a worker's personal characteristics and U is the unemployment rate. For any given X and U, the payoffs of the different outcomes are ranked as follows:

$$V_A^f > V_C^f > V_K^f > V_O^f.$$

Although the firm, like the worker, prefers to avoid the trial costs for given outcome ($V_A^f > V_C^f$ and $V_K^f > V_O^f$), the firm lexicographically prefers the worker out rather than in, just the opposite of the worker's ordering described in Assumption 2. The worst outcome for the firm is when the judge overrules the firing decision: in this case, according to Italian legislation, the firm is forced to take back the employee and it has to pay a fine to the social security system; moreover, additional effects of lost reputation with respect to the other workers add up to the trial costs suffered.

Labor market conditions can influence the firm's value of firing a worker after a misconduct episode. We maintain this assumption, that has been already introduced for workers, although in this case for all outcomes the magnitude as well as the sign of the effect is not clear a priori. For example, on theoretical grounds both a positive and a negative effect of the unemployment rate on the firm's payoff might be argued. In a situation of high unemployment it can be easier to find a replacement, and maybe even a better replacement, for the fired worker, determining a higher payoff from firing; alternatively, fairness and mutual gift considerations may induce the firm to restrain from firing when labor market conditions worsen.

Finally, we describe the judge's decision rule, which is a function of the actual misconduct M and of a legal standard M^j.

Assumption 4 (Judge's decision rule)
The judge confirms or overrules the firm's firing decision according to the following rule: If $M \geq M^j$ the judge confirms the firing decision.

The judge, for a given class of misconduct, has to compare the case examined with a standard which works as a cut-off rule: if the misconduct is higher than the legal standard, the judge confirms the firing decision of the firms. The legal standard defines how the concept of just cause is translated in the specific class of misconducts. Assumption 4 implies that M_j is independent of extra-judicial concerns and in particular indipendent of labor market conditions. This will correspond to our null hypothesis in the econometric analysis. The alternative hypothesis will be that the legal standard is affected by labor market conditions.

We complete the description of the game by specifying the information structure.

Assumption 5 (Information)
The game tree and the payoffs in the different outcomes are common knowledge. Let M be the gravity of misconduct as perceived by the judge. The firm and the workers take their decisions based on its expected value $\bar{M}$ such that the identity $M = \bar{M} + \epsilon$ holds, with $\epsilon \perp \bar{M}$, $\mu_\epsilon = 0$, σ_ϵ^2 finite and $F(\epsilon)$ continuous.[13].

We assume that the firm and the workers share the same signal $\bar{M}$ and the same probability distribution $F(\epsilon)$ of the unobserved component. As a result, both parties have the same probabilistic assessment of the judge's decision. Alternatively, we could have assumed divergent expectations caused by asymmetric information as in Bebchuk (1984) and Waldfogel (1998), or private signals as in Daughety and Reinganum (2000). However, as we argued above, we think that differences in stakes more than divergent expectations determine the selection of cases for trial in our situation, and therefore, to simplify the analysis, we focus only on the former model.

Finally, the reader may wonder why we do not model a previous stage in which the worker decides whether to commit a misconduct or not. While adding this stage to

[13]Given the decision rule of the judge, we can equivalently assume that the firm and the workers make their decisions based on a (common) expected value of the legal standard M^j while they evaluate the misconduct M exactly as the judge does.

the game would not complicate the equilibrium analysis, we will show in Section 4.1 that, thanks to the information available in our data set, we can solve the selection problem without taking explicitly this stage into consideration. Therefore, we limit the theoretical model to the stages discussed, in order to maintain the correspondence with the econometric implementation.

3.2 Equilibrium analysis

In order to find the subgame perfect equilibria of the game, we proceed by backward induction starting from the judges' decision at t_3.

Since we have already described the way in which the judges choose between confirm and overrule at t_3, we have only to find out how their decision is anticipated by the firm and the workers given the information available to them. The event $M \geq M^j$ can be anticipated by f and w only in probabilistic terms. More precisely, the probability evaluated by the firm and the worker that the judge confirms the firing decision is:

$$Pr(C \mid \bar{M}) = Pr(M \geq M^j \mid \bar{M}) = 1 - F(M^j - \bar{M}) \equiv p_C. \tag{1}$$

At t_2 the worker has to decide whether to go to trial or to accept it. If w goes to trial he gets $F(\cdot)V_O^w + (1 - F(\cdot))V_C^w$ while accepting brings him V_A^w. Hence the optimal decision, which depends on the gravity of the misconduct, on the legal standard and on the payoffs of the outcomes involved is summarized by the following:

Go to trial if $F(M^j - \bar{M}) \geq p_T$

where

$$p_T = \frac{V_A^w - V_C^w}{V_O^w - V_C^w}. \tag{2}$$

At t_1 the firm has to choose whether to keep or to fire the worker. Note that if $F(\cdot) < p_T$ the worker will accept the firm's decision: in this case it is a dominant strategy for the firm to fire. If $F(\cdot) \geq p_T$ the worker will go to trial and the firm's expected payoff from firing is $F(\cdot)V_O^f + (1 - F(\cdot))V_C^f$, while by keeping the worker the firm obtains V_K^f. Putting the two cases together, the firm will:

Fire if $F(M^j - \bar{M}) < \max\{p_F, p_T\}$
where

$$p_F = \frac{V_C^f - V_K^f}{V_C^f - V_O^f}. \tag{3}$$

Note that, since $F(\cdot)$ is a monotone increasing function, we can define, by inverting it, the threshold values in terms of the signal $\bar{M}$ of the true misconduct observed by the firm and the workers. Hence, at t_2 the worker will go to trial if

$$\bar{M} \leq M_T(M^j, V_O^w, V_A^w, V_C^w) = M^j - F^{-1}(p_T). \tag{4}$$

Hence the worker will go to trial if the observed misconduct is not too serious; the threshold level M_T is decreasing in the worker's payoff of accepting the firing decision and increasing in all the other variables. The worker is more prone to litigate the higher the legal standard, the lower the payoff from accepting the firm's decision and the higher the payoff of going to trial.

At t_1 the firm will fire if the signal of the misconduct is:

$$\bar{M} \geq \min\{M_T, M_F\}, \tag{5}$$

where

$$M_F(M^j, V_O^f, V_K^f, V_C^f) = M^j - F^{-1}(p_F). \tag{6}$$

The firm is therefore more willing to fire the lower the legal standard and the payoff from keeping the worker and the higher the payoff of going to trial. Note that the threshold level M_T of the signal varies across workers, since the payoff of the different outcomes changes according to individual characteristics. For the same reason, the payoff of the firm, and therefore the threshold signal M_F, can be different according to the individual involved in the case.

Once defined the optimal behavior at the different nodes, we are able to identify the subgame perfect equilibria of the game. The particular equilibrium outcome that can occur depends on the misconduct and the legal standard (through $F(\cdot)$) and on the payoff of the agents (through the values of M_F and M_T). The following proposition describes the subgame perfect equilibrium outcomes (in bold the final nodes) of the game. The equilibrium outcomes associated to different levels of the misconduct $\bar{M}$ are shown in Figure 2.

Proposition 1 (Equilibrium of the game)
If $M_T > M_F$ there are three subgame perfect equilibrium outcomes in the game (see Panel A in Figure 2):

- *For $\bar{M} \leq M_F$ the firm* ***keeps*** *the worker;*

- *For $M_F < \bar{M} \leq M_T$ the firm fires the worker, who goes to* ***trial*** *(with possible outcomes* ***confirm*** *and* ***overrule****);*

- *For $\bar{M} > M_T$ the firm fires the worker, who* ***accepts*** *the firm's decision.*

If $M_T \leq M_F$ there are two subgame perfect equilibrium outcomes in the game (see Panel B in Figure 2):

- *For $\bar{M} \leq M_T$ the firm* ***keeps*** *the worker;*

- *For $\bar{M} > M_T$ the firm fires the worker, who* ***accepts*** *the firm's decision.*

According to the type of misconduct, the personal characteristics of the worker and the unemployment rate, we can have A, K, C and O as the observed outcomes of the process.

A natural exercise at this point would be the comparative statics of the relevant thresholds M_F and M_T when the personal characteristics X or the unemployment rate U vary. We might learn in this way how the equilibrium outcomes change for given misconduct when some relevant variables defining the individuals and the environment move. However, on theoretical grounds we do not have sufficiently strict priors to sign these effects. Take M_T as an example: we have argued that both the payoffs when the worker accepts to be fired (V_A^w) and when the judge confirms the firing decision (V_C^w) are decreasing in unemployment, while we do not have clear restrictions on the effects of unemployment on the payoff when the worker is taken back in the firm due to judge's overruling (V_O^w). Then, looking at the expression of p_T and M_T it is immediate to notice that we can admit both a shift to the right or to the left of this threshold. Similar arguments apply to the threshold p_F and M_F which depend on firm's payoffs. Hence, we have to postpone to the empirical analysis the answer to the effects of unemployment on the type of misconducts that come before the judge.

If the misconduct and the firm's and worker's payoffs were perfectly observed, we would be able to predict exactly the sequence of moves that will occur. However, this is not the case once we consider the econometric implementation of the model: in particular, we shall assume that we do not observe exactly the signal that the firm and the workers receive on the misconduct. In the following section we consider how an external observer is able to reconstruct the behavior of the agents, and the corresponding probabilistic structure of the different equilibrium outcomes.

3.3 From theory to data

We start our description of the econometric model by specifying what an external observer (EO hereafter) knows about the relevant data of the problem.

Assumption 6 (EO information)

- *The EO knows the game;*
- *The EO knows that the legal standard $M^j = M^j(U)$ is (possibly) a function of the unemployment rate, and he knows the cumulative distribution of the ϵ term $F(\cdot)$. Moreover he knows that the signal $\bar{M}$ received by the firm and the workers can be written as a function of the observed characteristics of the misconduct z and an unobservable (to the EO) component:*

$$\bar{M} = \hat{M}(z) + \eta, \tag{7}$$

where η is i.i.d. and distributed according to the cdf function $G(\cdot)$.

- *The payoff of a worker can be written as a function of the unemployment rate U and of the personal characteristics X:*

$$V_i^w = \alpha^w U_i^w(X, U) + \eta^w \quad i = K, A, O, C, \tag{8}$$

where α^w (η^w) is a random draw from an i.i.d. variable with mean equal to 1 (0) and finite variance.

- *The payoff of the firm can be written as a function of the unemployment rate U and the worker's personal characteristics X:*

$$V_i^f = \alpha^f U_i^f(X, U) + \eta^f \quad i = K, A, O, C, \tag{9}$$

where α^f (η^f) is a random draw from an i.i.d. variable with mean equal to 1 (0) and finite variance.[14]

- *The EO does not observe $\eta, \eta^w, \eta^f, \alpha^w$ and α^f.*

The EO is able to reconstruct the signal of the true misconduct received by the firm and the worker up to a random term η. On the same grounds, the EO can compute the workers' and firm's payoff in the different outcomes as a function of the personal characteristics and the unemployment rate, up to a random affine transformation. Since the threshold probabilities p_T and p_F (and the threshold misconducts M_T and M_F) are ratios of differences in workers' and firm's payoffs V_i^w and V_i^f, the random terms α^w, α^f, η^w and η^f cancel out. Therefore the thresholds can be expressed in terms of the $U_i^f(X, U)$ and $U_i^w(X, U)$ components, i.e. as a (deterministic) function of the personal characteristics X and the unemployment rate U.

In order to specify the econometric model, we assume that all the relevant relations can be linearized.

[14] Note that even if in our application there is only one firm, there can still be heterogeneity of type α^f and η^f across cases.

Assumption 7 (Linearization)
$M^j(U)$ can be expressed as a linear function of the unemployment rate U and $\bar{M}(z)$ as linear functions of the misconduct characteristics z. The thresholds M_F and M_T can be written as linear functions of the personal characteristics X and of the unemployment rate U.

The EO knows the different subgame perfect equilibrium outcomes that occur according to the value of the thresholds and of the perceived misconduct. Given Assumptions 7 and 6, the EO is able to compute exactly the thresholds p_T and p_F as well as M_T and M_F, since he knows $F(\cdot)$. Given Assumption 7, moreover, the thresholds can be written as linear expressions of the controls:

$$M_T = \gamma_0 + \gamma_1 U + \gamma_2' X \tag{10}$$

and

$$M_F = \lambda_0 + \lambda_1 U + \lambda_2' X. \tag{11}$$

Note, that no unobservable component appears in equations (10) and (11). This is because thanks to the specification of the firm's and workers' payoffs in Assumption 6, unobservable heterogeneity cancels out of the expression for the two thresholds.

Finally, the signal $\bar{M}$ is reconstructed as:

$$\bar{M} = \beta' z + \eta \tag{12}$$

and the legal standard depends (possibly) on the unemployment rate U:

$$M^j = \delta_0 + \delta_1 U. \tag{13}$$

With the above information, the EO is able to identify the probability that the different outcomes will occur as follows.

If $M_F < M_T$ (Panel A in Figure 2), the firm keeps the worker if and only if $\bar{M} < M_F$. Accordingly, the probability of observing K is:

$$Pr(K) = Pr(\eta < \eta_F) = G(\lambda_0 + \lambda_1 U + \lambda_2' X - \beta' z), \tag{14}$$

where $\eta_F = M_F - \hat{M}$. On the other hand, if $M_F > M_T$ (Panel B in Figure 2), the firm keeps the worker if and only if $\bar{M} < M_T$, implying that the probability of observing K is:

$$Pr(K) = Pr(\eta < \eta_T) = G(\gamma_0 + \gamma_1 U + \gamma_2' X - \beta' z), \tag{15}$$

where $\eta_T = M_T - \hat{M}$.

Since the worker goes to trial if and only if $M_F \leq \bar{M} < M_T$, the EO observes T with probability

$$Pr(T) = Pr(\eta_F < \eta < \eta_T) = G(\gamma_0 + \gamma_1 U + \gamma_2' X - \beta' z) - G(\lambda_0 + \lambda_1 U + \lambda_2' X - \beta z). \quad (16)$$

Note that the outcome T is feasible only if $M_F < M_T$, as in Panel A of Figure 2.

Finally, the worker accepts the firm's decision if $\bar{M} > M_T$, which is observed by the EO with probability:

$$Pr(A) = Pr(\eta > \eta_T) = 1 - G(\gamma_0 + \gamma_1 U + \gamma_2' X - \beta' z). \quad (17)$$

The observation of A conveys the information that the inequality $\bar{M} > M_T$ holds independently of the ordering between M_F and M_T.

The decision of the judge is based on a comparison of the judicial standard M^j and the true misconduct M. However, not all misconducts are filed before the judge, but only those which in equilibrium induce the firm to fire the worker and the worker to file the case. This is the selection bias that must be taken into account. Given the EO information, a case is filed if $\eta \in [\eta_F, \eta_T]$. The EO evaluates the probability that the judge confirms the firing decision, conditional on the worker filing the case, as:

$$Pr(C \mid T) = Pr(\hat{M} + \epsilon + \eta \geq M^j \mid \eta \in [\eta_F, \eta_T]) = L(\theta_0 + \theta_1' z + \theta_2 U), \quad (18)$$

where $L(\cdot)$ is the cdf of $\epsilon + \eta$ conditional on η falling in the interval $[\eta_F, \eta_T]$. The coefficients on z and U entering $\Pr(C|T)$ are not in general those of the structural equations (12)-(13), since they measure the net effect of marginally changing z and U on the probability to observe C as a result of both a change in the composition of misconducts brought to court and a change in the legal standard.

3.4 The testing strategy

We are now ready to specify our testing strategy. Under the null hypothesis H_0, the legal standard does not depend on the unemployment rate, i.e. $\delta_1 = 0$: the judge in evaluating the firing decision does not take labor market conditions into account. H_1 instead implies that the legal standard depends on local unemployment, i.e. $\delta_1 \neq 0$. Note, however, that under the assumptions of the econometric model described in the previous section we cannot identify and estimate the structural parameter δ_1.[15] Therefore we follow an indirect way to test the hypothesis of interest.

To understand the logic of this indirect testing strategy it is useful to consider first the hypothetical but simpler case in which the EO observes the same misconduct

[15] In section 3.5, under a more demanding set of assumptions, we show how this structural parameter could be estimated. This alternative estimation strategy will allow us to check the robustness of the results obtained with the testing procedure described in this section.

indicator $\bar{M}$ on which the firm and the worker base their decisions. Conditioning on $\bar{M}$ the probability to observe C in a trial taking place at level U of unemployment is:

$$\begin{aligned} \Pr(C|T,U,\bar{M}) &= \Pr(M > M^j | M_F < \bar{M} < M_T, U, \bar{M}) \\ &= \Pr(\varepsilon > \delta_0 + \delta_1 U - \bar{M} | M_F < \bar{M} < M_T, U, \bar{M}) \\ &= \Pr(\varepsilon > \delta_0 + \delta_1 U - \bar{M}) \\ &\equiv \Pr(C|U,\bar{M}), \end{aligned} \tag{19}$$

the next to last equality following from the orthogonality between ε and $\bar{M}$. In other words, the distribution of the unobservable entering the judge's decision, ε, in the subset of cases brought to the court would be the same as in the whole population of misconducts. In this situation, a simple regression of the judge's decision on $\bar{M}$ and U would reveal whether or not $H_0 : \delta_1 = 0$ holds.

When instead the EO has less information than the parties, which is our case, the testing strategy is complicated by the fact that, from the EO viewpoint, the unobservable entering the selection process, η, is correlated to the unobservable entering the judge's decision, $\eta + \varepsilon$. As a result, the probability to observe C identifiable by the EO is not the same as the probability to observe C in the whole population of cases: $\Pr(C|T,U) \neq \Pr(C|U)$.

Moreover, the model shows that the probability to observe a trial depends on U, because the selection process is not invariant with respect to unemployment. For example, it could happen that where unemployment is higher, less serious misconducts are brought to court. Suppose that under this assumption more workers' victories were observed at trial in the regions where unemployment is higher. Then we would not be able to say if this were due to the fact that the criteria of judges change with U or to the lower gravity of misconducts in high unemployment areas. Similarly uninformative would be the case in which, where unemployment is higher, more serious misconducts were brought to court and more firms' victories were observed at trial. In all these cases it would be impossible to disentangle the effect of unemployment on judges' criteria from the effect of unemployment on the selection process.

However, one can immediately see the possibility of a combination of observed facts that would be informative. If more serious miconducts are brought to court where unemployment is high and nevertheless more workers' victories are observed in the same areas, it would be reasonable to conclude that worse labor market conditions bias judges in favor of workers. Vice-versa, if less serious misconducts are brought to court where unemployment is high and nevertheless more firms' victories were observed in the same regions, we would naturally conclude the opposite.

In other words, the gravity of the cases selected for trial depends on how the thresholds M_T and M_S change with U. This observation suggests the testing strategy summarised in the following proposition.

Proposition 2 (Testing strategy)

- *If*

$$\frac{dM_T}{dU} \geq 0 \textit{ and } \frac{dM_F}{dU} \geq 0 \textit{ with at least one strict inequality} \tag{20}$$

and if

$$\frac{dPr(C|T)}{dU} \leq 0 \tag{21}$$

then

$$\delta_1 > 0. \tag{22}$$

- *If*

$$\frac{dM_T}{dU} \leq 0 \textit{ and } \frac{dM_F}{dU} \leq 0 \textit{ with at least one strict inequality} \tag{23}$$

and if

$$\frac{dPr(C|T)}{dU} \geq 0 \tag{24}$$

then

$$\delta_1 < 0. \tag{25}$$

- *In all other combinations of results the data are not informative on the sign of* δ_1.

We implement this testing strategy in two steps. First we estimate the ordinal qualitative regression described by equations (14)-(17) and we test whether and how the thresholds depend on U, i.e. whether equation (20) or equation (23) holds. The second step will be fitting the binomial regression described by equation (18) in order to establish whether equation (21) or equation (24) holds.

As for the estimation of the ordinal qualitative regression describing the selection process, note that there is a further problem to tackle. The probability of observing K, as specified in (14) and (15), depends on whether it is $M_F < M_T$ or the other way around (i.e. on whether Panel A or B prevails in Figure 2). This is problematic because the ordering of M_F and M_T is not observable to the EO. As a consequence, the EO cannot rely on (14) and (15) to specify the likelihood function s/he needs in order to make inference on the structural parameters. Note, however, that the observation of K unambiguously conveys the information that the misconduct gravity as perceived by f and w is below the threshold M_F. Such information is valuable to the EO since it implies that any observation displaying K contributes to the likelihood function with the term (14). This causes no loss of consistency, but an unavoidable loss of efficiency with respect to the hypothetical case in which we were able to observe the ordering of M_F and M_T for each episode and there existed at least some episodes exhibiting $M_T < M_F$.[16]

Hence, we can effectively disregard the distinction between the two panels of Figure 2 and estimate a likelihood function in which the observations displaying K, T and A contribute respectively with the terms (14), (16) and (17).

3.5 A sensitivity analysis

As a complement to the testing strategy described above we also consider the following sensitivity analysis which allows us to obtain an estimate of the structural parameters of the process generating the judge's decision (in particular δ_1) at the price of imposing an identifying restriction on the degree of correlation between $\epsilon + \eta$, the unobservable in the judge equation, and η, the unobservable in the selection equation. Note that these unobservable components of the two equations can be interpreted, respectively, as what the EO does not know of the misconduct as perceived by the judge and what the EO does not know of the misconduct as perceived by the parties.

Conditioning on T (and on U, X, Z) the probability to observe C, as implied by equations (10)–(13) and by Assumption 5, is:

$$Pr(C|T, U, X, Z) = \int Pr(M > M^J|U, X, Z, \eta)dG(\eta|s < \eta < r), \tag{26}$$

where

$$\begin{aligned} s &= \frac{1}{\sigma_\eta}(\gamma_0 + \gamma_1 U + \gamma_2' X - \beta' z) \\ r &= \frac{1}{\sigma_\eta}(\lambda_0 + \lambda_1 U + \lambda_2' X - \beta' z). \end{aligned} \tag{27}$$

Assuming that ϵ and η are independently and normally distributed, the previous probability becomes:

$$\begin{aligned} Pr(C|T, U, X, Z) &= \int Pr(\epsilon + \eta > \delta_0 + \delta_1 U - \beta' z|\eta)dG(\eta|s < \eta < r) \\ &= \int \Phi\left(\frac{-\delta_0 - \delta_1 U + \beta' z - \rho\eta}{\sqrt{(\sigma_\epsilon^2 + \sigma_\eta^2)(1 - \rho^2)}}\right) dG(\eta|s < \eta < r), \end{aligned} \tag{28}$$

where ρ is the correlation coefficient between $\epsilon+\eta$ and η. Note that, given the estimates of M_F and M_T, the distribution $G(\eta|s < \eta < r)$, with respect to which the integral is evaluated, is assigned. Hence, by plugging in alternative sensible values for ρ we can

[16] However, the evidence based on our estimated thresholds suggests that this event occurs in no more than ten cases in our sample.

assess how much the estimate of δ_1 is sensitive to the degree of non-randomness in the selection of cases for trial.[17] Note that since ρ is equal to $\sigma_\eta^2/\sqrt{\sigma_\eta^2(\sigma_\eta^2+\sigma_\varepsilon^2)}$, it cannot be negative. Moreover, if the two variances are approximately equal, ρ is close to 0.7. Since σ_η^2 is a measure of the EO ignorance on $\bar{M}$ (i.e the common signal observed by the firm and the worker) and σ_ϵ^2 is a measure of the firm's and worker's ignorance on M (i.e. the misconduct as perceived by the judge), it is reasonable to argue that $\sigma_\eta^2 > \sigma_\epsilon^2$ (i.e. the EO is less informed about $\bar{M}$ than the parties about M). If this likely condition is satisfied, it follows that ρ must be greater than 0.7.

Therefore, using this strategy we can obtain estimates of the structural parameter δ_1 for different values of ρ, which we can use to test directly whether judges are biased by labor market conditions. Note that here we are exploiting a restriction (on the size of ρ) which is irrelevant to the strategy developed in the previous section. In fact, that strategy does not rely on the estimation of the structural parameters of the judge's decision and in this sense it is more robust than the one developed here. On the other hand, exploiting a restriction on the size of ρ which appears plausible, we can check the robustness of our main conclusions by means of a more powerful test of the hypothesis under study.

4 The empirical evidence

In this section we present our evidence looking separately at the two steps of the testing strategy described in Proposition 2. We begin with the results concerning the effect of local labor market conditions on the selection process.

4.1 The effect of labor market conditions on the selection process

Assuming that the distribution $G(\eta)$ is normal, equations (14), (16) and (17) originate an ordered probit model with different cut points for each observation. The cut points are the thresholds, in terms of the unobservable η, which determine the observed outcome of the selection process.

In Table 5 we present maximum likelihood estimates of this ordered probit model using the indicator "Working in the south" as a measure of local labor market conditions (see Section 2). The first column displays the estimates of the parameters λ_0, λ_1 and λ_2 which can be interpreted as measures of the effect of observables on the threshold η_F (or equivalently M_F). Similarly, the second column displays the estimates of

[17] In fact, we estimate the structural parameters of the judge's decision up to the scale parameter $\sqrt{(\sigma_\epsilon^2+\sigma_\eta^2)(1-\rho^2)}$. For the sake of brevity, in the sequel we avoid refraining this warning.

the parameters γ_0, γ_1 and γ_2 in the same equations, which measure the effect of observables on the threshold η_T (or equivalently M_T). Finally the third column displays the estimates of the parameters β which measure (with the opposite sign) the correlation between the indicators of misconduct $\hat{M}$ observed by the EO and the indicator $\bar{M}$ observed by the parties.

The coefficients of interest for our purposes are the ones displayed in the first row, which indicate the effects of working in the south on the two thresholds. As explained in Section 3.2, from a theoretical point of view these effects are ambiguous. The empirical evidence, however, does not leave space for doubts. Worse labor market conditions have an insignificant positive effect on the firing threshold M_F but a large and significant effect on the trial threshold M_T. Therefore, on average, more serious misconduct episodes are brought to trial in the south.[18]

In Table 6 we present similar evidence using the regional unemployment rate (see Section 2) as a measure of the state of local labor market conditions. Also in this case the evidence is unambiguous. A higher regional unemployment rate does not affect the firing threshold M_F but increases significantly the trial threshold M_T. Therefore, more serious cases of misconduct go to trial in regions where unemployment is higher.[19]

As we anticipated in Section 3.1, the information contained in our data allows us to solve the selection problem without taking explicitly into consideration the previous stage of the game in which the worker decides whether to commit a misconduct or not. We can do so thanks to the assumption that any systematic regional difference in $\bar{M}$ is controlled for by conditioning on the observables that describe the type and gravity of the misconduct (i.e. the vector Z). In other words, we maintain that η is independent of U. We think that this (non-testable) assumption is justified by the richness of the information on the characteristics of misconducts contained in our data. However, if this justification is considered insufficient, it should also be noted that the direction in which this assumption is more likely to be violated reinforces our

[18] As for the effects of other observables, in which we are not primarily interested, age reduces both thresholds while higher hierarchical levels increase the trial threshold. Note that this could be due to the fact that the indicators of managerial or white-collar status also capture to some extent the gravity of the misconduct episode. In a bank, the average misconduct of a manager is very likely to have worse consequences for the firm than the average misconduct of a blue collar. In other words, the hierarchical indicators have to some extent the same nature of the misconduct indicators z. Finally it is also interesting to mention that the thresholds changed through time. In particular, beginning with the period 1983-1986, which can be characterized as the initial period of increasing weakness of unions and labor parties in Italy (see Erickson and Ichino, 1994), we observe a decreasing trend of the average gravity of misconducts at trial. We experimented with different specifications of these observables, like for example a finer characterization of hierarchical levels or meaures of length and type of education, which are highly correlated with the hierarchical levels. The coefficient of the south dummy was unaffected in all cases.

[19] The results concerning the effects of observables are also similar to the ones described in footnote 18 for Table 5.

argument. This is suggested by the evidence in Ichino and Maggi (2000) who show that the observed gravity of misconducts is significantly higher in regions characterized by higher unemployment. We claim that if this is true for the observable component of misconducts $\hat{M} = \beta' z$, there is no reason to suppose that the opposite should hold for the unobservable component η. Hence, even if we took explicitly into consideration this previous stage of the selection, at the cost of a significant complication of the analysis, we would still find that more serious misconducts tend to be selected for trial where unemployment is higher.

On the basis of these findings we conclude that equation (20) of Proposition 2 holds. The next step of our testing strategy requires us to establish whether worse labor market conditions are associated with more firms' or workers' victories at trial.

4.2 The effect of labor market conditions on judges' decisions

The legal procedure that firing litigations have to follow in Italy involves three possible court levels: *Pretura*, *Tribunale* and *Corte di Cassazione*. The first two levels are located in the region in which the employee is working while the third one is in Rome.[20] When an employee files suit against the firm for unfair dismissal, the case goes first in front of a judge at the *Pretura* level. If the decision of this judge is appealed by one of the two parties, the case goes to the second court level and sometimes to the third. This latter may only decide on procedural or law interpretation issues concerning the case: it cannot decide on merit. It can, however, state that a different judge at the *Tribunale level* (usually located in a different province of the same region) has to reconsider the case from a merit point of view. So the same case may in principle be judged by 4 different courts (sometimes even more).

In our sample there have been 148 courts' decisions out of which 83 were final. There are also 3 additional cases which are still unsettled. So on average there were less than 2 decisions for each case. Table 7 reports the outcomes at each court level. The last column shows that 42 cases ended at the first level, 26 at the second and 15 at the last one. Looking instead at the third column, where the whole set of judges is considered, the proportion of decisions taken at lower levels is obviously much larger.[21] Firing was overruled by 29% of the 148 courts that evaluated the case, but if we consider only the final courts the decision was favorable to the worker only in 17% of the 83 tried cases.

[20] The litigation code foresees that the worker can also file the case in front of the court near the headquarters of the company, but in our dataset this happens only twice and anyway in the northern part of the country.

[21] Note that there are 90 decisions at the first level (*Pretura*) even if the cases that go to trial are only 86. The reason is that at the *Pretura* level the standard decision is sometimes preceded by a preliminary urgency procedure. This happens when, for example, the trial cannot be held immediately, but the worker asks the judge to stop the effects of the firing decision temporarily. Sometimes a decision in favor of the firm at this preliminary urgency level is enough to induce the worker to accept the firing.

As we argued in Section 2, the fact that the workers' victories (i.e. overrule) are less frequent at all levels, and in particular at the final level, suggests that the firm goes to trial only when it thinks it has a very good case. In the light of the theory of cases' selection for trial proposed by Priest and Klein (1984) and Waldfogel (1995) this is evidence of a general bias of judges in favor of workers.

From the viewpoint of the hypothesis tested in this paper (i.e. whether labor market conditions influence judges' criteria) the existence of these multiple levels of judgement slightly complicates the analysis. Clearly, the selection of cases for trial is followed by a selection of cases for appeal to higher court levels. Also this second type of selection could in principle be modeled within a framework similar to the one we have used for the first type, but the number of cases at trial is too small to allow for a proper econometric analysis of the decisions to appeal.

It is, however, reasonable to assume that the judge's decision that the firm and the worker have in mind during the selection process (see equation (1)) is the final one, independently of the court level at which it takes place. To complete our testing strategy we will therefore start by looking at how labor market conditions affect the probability of observing a firm's victory (i.e. confirm) in the final court. The first row of Table 8 reports the relevant estimate based on a Probit model.[22] Working in the south reduces the probability of a firm's victory by 13.4 percentage points. As explained in Proposition 2, since more serious misconducts are brought to trial in the south, we are able to draw conclusions only if we can reject the hypothesis that this effect is positive. The P-value of the corresponding one-sided test is 0.048. Given the small sample size, this significance level appears sufficient to conclude that the worse labor market conditions of southern regions must bias judges in favor of workers, i.e. $\delta_1 > 0$. Only the presence of such a bias can explain why more workers' victories are observed in the south, even if in this area more serious misconducts are brought to trial. Similar conclusions can be derived from the first row of Table 9, which reports the estimate of the effect of regional unemployment. A 1% increase of this indicator reduces the probability of a firm's victory by 1.3 percentage points. The P-value of the corresponding one-sided test is higher (0.060) but still acceptable given the small sample size.

We also estimated the same Probit model on the sample of all the 148 judges who

[22] In addition to the indicator of labor market conditions in which we are primarily interested, the estimated model includes the following control variables for which we do not present results in order to save space: age, dummies for manager and white collar, time dummies to capture different phases in the historical development of Italian industrial relations, misconduct gravity, dummy for repetition and dummies for type of misconduct. Note that in the context of these regressions, controls like age, and hierarchical or time dummies, contribute to a better description of the misconduct episodes. For example, managers are likely to commit, ceteris paribus, more serious misconducts than white collar workers. In the models for the selection process estimated above, these variables had not only this function but also the function of capturing the preferences of agents.

looked at the cases. The advantage is a higher sample size, but we need to take into account the correlation between multiple decisions on the same cases. The second row of Table 8 shows that, within this larger sample, working in the south reduces the probability of a firm victory by 18.4 percentage points. The P-value of the one-sided test is much lower (0.012) and allows to reject with greater confidence that the effect is positive. A similar increase in the absolute value of the effect and in its significance is shown in Table 9 for the case in which labor market conditions are proxied by regional unemployement. It is interesting to note, in the last two rows of both tables, that the judges at the *Tribunale* level are the ones whose criteria are more strongly influenced by local labor market conditions.[23]

Summing up, we observe more workers' victories in the south and in regions with higher unemployment rates, but these are the areas where we also observe more serious misconducts at trial. This combination of results suggests that the worse labor market conditions of these areas bias the judges in favor of workers.

As a robustness check of these conclusions, Table 10 reports the results obtained using the alternative estimation strategy described in Section 3.5, which estimates the structural parameters of the judge's decision at the price of imposing a restriction on the correlation between what the EO does not know of the misconduct as perceived by the judges (i.e. $\epsilon + \eta$) and what the EO does not know of the misconduct as perceived by the parties (i.e. η).

The two panels of the table display estimates of the marginal effect (respectively) of working in the south and of the unemployment rate on the probability that the final judge's decision confirms the firing. The estimates are computed at the sample average for different values of the coefficient ρ which measures the correlation between $\epsilon + \eta$ and η. As we show in Section 3.5, this parameter is certainly positive and takes values greater than 0.7 if the EO ignorance on $\bar{M}$ (i.e. σ_η^2) outweighs the parties' ignorance on M (i.e. σ_ϵ^2), which seems a plausible assumption. As soon as the correlation coefficient is assigned higher values the marginal effect of the regional unemployment indicators increases in size and reaches high levels of significance. Note that these results reinforce our conclusions also because they are obtained in the smaller sample of final decisions, which is the most relevant from our viewpoint.

[23]Anecdotal evidence from experts in the field suggests that these are the judges of the "1968" generation. Indeed you can track in the data the behavior of this generation of judges by looking separately at the decisions of the *Pretura* level during the 1980s and of the higher *Tribunale* level during the 1990s. We omit these results for brevity.

4.3 To what extent are we capturing only the effect of local labor market conditions?

The conclusions we reached with the above analysis may be challenged with the argument that our regional labor market indicators (in particular the "south dummy") capture not only the extent of local unemployment but also other potentially relevant environmental characteristics. Indeed, while on the basis of our results it seems possible to conclude with full confidence that "some" local characteristics affect the decision criteria of judges, it seems impossible to conclude with the same degree of confidence that the state of the labor market is the "only" or even just the "most" important of these local characteristics. Italian regions differ in many ways which may be relevant from the viewpoint of this paper: from the economy to the climate, going through culture and history.[24] Yet it can hardly be denied that one of the most macroscopic regional differences is represented by the performance of labor markets, as, for example, indicated by the huge heterogeneity of regional unemployment rates described in Table 4. This suggests that even if unemployment is not the only local factor influencing the decision of judges, it is difficult to dismiss its relevance.[25]

There is, however, one important confounding factor that we can dismiss with the help of collateral evidence. It is conceivable that our results may be due to the existence of some kind of "ideological" sorting of judges across regions. Suppose, for example, that more "leftist" and "pro-workers" judges were concentrated in the South of Italy, and therefore in the regions with high unemployment. If this orientation were known to workers, it would be natural to find more serious misconducts reaching the trial stage as well as more frequent workers' victories in these regions.

To establish whether this alternative interpretation of our results is plausible, we obtained data on the 1994 elections for the Italian governing body of judges (the *Consiglio Superiore della Magistratura*). In these elections the Italian judges faced four parties among which they could choose their representatives, two of which were strongly characterized by a leftist ideology.[26] The proportion of votes for these two leftist parties in the southern regions was 34%, while in the northern regions it was ten percentage points higher, and the difference is statistically significant.

Unfortunately these numbers refer to all judges, not only labor judges, and we do not have evidence from other elections in the 1979-1995 period covered by our

[24] See, for example, Putnam (1993) for an inspiring analysis of the disomogeneous socio-economic performance of the Italian regions.

[25] Ideally, to disentangle the pure effect of labor market tightness in our analysis we would have to test whether the effect of the regional unemployment rate persists even after controlling for regional dummies, although even this approach would not be enough to control for time varying regional characterstics. Unfortunately regional unemployment rates are so persistent within and across regions, that the multicollinearity between regional dummies and regional unemployment rates makes it impossible to disentangle the effect of the latter.

[26] See Bruti Liberati and Pepino (2000) for further details on the relevant electoral rules.

analysis.[27] Nevertheless, this finding suggests that if any form of ideological sorting of judges across regions has taken place in Italy, it should have generated opposite results with respect to the one we found in our analysis. Leftist judges appear to be more concentrated in northern regions and yet these are the regions in which fired workers are more reluctant to go to trial and in which firms' victories at trial are more frequent. Therefore, this additional, albeit partial, piece of evidence reinforces our conclusion that the tightness of local labor markets influences judges criteria in firing litigation.

5 Conclusions

When a firing litigation is taken to court, only the characteristics of the employee's misconduct episode should be relevant for the judge's decision. This paper shows that, instead, local labor market conditions are also likely to influence the court's decision: the same misconduct episode may be considered sufficient for a legitimate firing in a tight labor market but insufficient otherwise.

This conclusion has been reached on the basis of the following argument. We observe that where unemployment is higher, more serious misconducts are brought to trial. As a consequence, if the legal standard of judges were independent of unemployment, we should also observe more firms' victories at trial in the same areas. We observe, instead, that higher unemployment is associated with more workers' victories at trial and this suggests that worse labor market conditions induce judges to be more favorable to workers. Although we cannot exclude that our regional indicators of unemployment may capture also the effect of other environmental factors on judges' criteria, the importance of labor market factors can hardly be dismissed given the evidence, while the effect of other potential confounding factors, like the ideological sorting of judges across regions, seems if anything to reinforce our interpretation.

This finding is important for at least two research fields. From a macroeconomic point of view, in addition to the traditional channel of causation according to which higher firing costs may increase unemployment rates if they reduce hiring more than they prevent firing, the evidence offered by this paper suggests the existence of a reversed channel of causation: higher unemployment rates increase firing costs via the effect on judges' decisions. More generally, the real extent of firing rigidities, that has been considered so crucial in the debate on European unemployment, cannot be really assessed without taking into consideration the role of courts. The analysis of the relation between labor market conditions and the decision criteria of judges is also important for labor law scholars because following traditional Italian principles, the law should be applied in the same way for all citizens and over the entire national territory:

[27] We have, however, results for the 1998 elections, in which the regional difference is almost exactly identical.

judges should not be influenced by local labor market conditions when deciding on firing litigations.

The evidence presented in this paper is based on one, albeit large, Italian firm from which we were able to gather high quality information on misconduct episodes and on the selection of litigations for trial. These firm data, in spite of their high quality and nationwide extension, do not allow us to draw general conclusions. Nevertheless they suggest that more research on the role of courts in raising labor market rigidities is useful and promising.

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Table 1: Number of episodes at each stage of the selection process

Outcome	First stage		Second stage		Third stage	
Original episodes	*1862*					
No firing	1453	78%				
Firing	409	22%	*409*			
No trial			323	79%		
Trial			86	21%	*86*	
Firing confirmed					69	80%
Firing overruled					14	17%
Waiting for decision					3	3%

Table 2: Distribution of types of misconduct episodes

Misconduct type	Freq.	Percent
Absence and late arrival episodes	275	14.77
External violations	592	31.79
Internal violations	802	43.07
Inappropriate behavior in the workplace	193	10.37
Total	1862	100.00

Table 3: Distribution of misconduct episodes by level of gravity

Misconduct gravity	Freq.	Percent	Cum.
Level 1	93	4.99	4.99
Level 2	510	27.39	32.38
Level 3	470	25.24	57.63
Level 4	211	11.33	68.96
Level 5	254	13.64	82.60
Level 6	118	6.34	88.94
Level 7	105	5.64	94.58
Level 8	101	5.42	100.00
Total	1862	100.00	

Table 4: Summary statistics for unemployment rates and individual characteristics

Variable	Obs.	Mean	S. Dev.	Min.	Max
Unemployment rate for:					
all misconduct cases	1862	10.9	5.5	3.4	26.8
only cases in the south	538	18.4	4.2	8.5	26.8
only cases in the north	1324	7.9	2.2	3.4	12.7
Individual characteristics for the sample of misconduct cases:					
age	1862	38.3	9.0	17.1	61.6
managers	1862	0.13	0.33	0	1
white collars	1862	0.74	0.41	0	1
Individual characteristics for all employees in 1986:					
age	16041	38.8	9.6	19.3	65.3
managers	16041	0.18	0.38	0	1
white collars	16041	0.72	0.44	0	1

Note: The source of the unemployment data is ISTAT.

Table 5: Selection of cases for trial: the effect of working in the South

	Effects on firing threshold M_F	Effects on trial threshold M_T	Effects on EO signal of misconduct $\hat{M}$
Working in the south	0.041	0.305	
	(0.087)	(0.094)	
Age	- 0.010	-0.013	
	(0.005)	(0.005)	
Manager	0.150	0.380	
	(0.174)	(0.180)	
White Collar	0.176	0.287	
	(0.126)	(0.130)	
Period 1983-1986	-0.196	-0.142	
	(0.121)	(0.129)	
Period 1987-1995	-0.207	-0.204	
	(0.113)	(0.119)	
Intercept	2.961	3.140	
	(0.234)	(0.245)	
Gravity of misconduct			-0.405
			(0.022)
Repetition			-0.444
			(0.083)
External violation			-0.190
			(0.139)
Internal violation			0.396
			(0.145)
Inappropriate behavior			0.232
			(0.184)
Average predicted M_F and M_T	2.57	2.83	
Average predicted η_F and η_T	1.03	1.28	

Note: Maximum likelihood estimation of the Ordered Probit model described in Section 3.3. The dependent variable is an ordinal indicator taking value 1 if the firm keeps the worker, 2 if the worker is fired and goes to trial and 3 if the worker is fired and accepts the firing. The excluded hierarchical level dummy denotes blue collars. The excluded type of misconduct denotes unjustified absence episodes. The average predicted M_F and M_T are defined respectively in equations (11) and (10). The average predicted η_F and η_T are defined respectively after equations (14) and (15). Standard error in parentheses. The sample size is 1862.

Table 6: Selection of cases for trial: the effect of the unemployment rate

	Effects on firing threshold M_F	Effects on trial threshold M_T	Effects on EO signal of misconduct $\bar{M}$
Unemployment rate	0.001	0.025	
	(0.007)	(0.008)	
Age	- 0.010	-0.014	
	(0.004)	(0.005)	
Manager	0.170	0.360	
	(0.174)	(0.178)	
White collar	0.198	0.261	
	(0.126)	(0.129)	
Period 1983-1986	-0.195	-0.185	
	(0.123)	(0.131)	
Period 1987-1995	-0.218	-0.274	
	(0.117)	(0.123)	
Intercept	2.919	3.027	
	(0.237)	(0.249)	
Gravity of misconduct			-0.404
			(0.022)
Repetition			-0.443
			(0.083)
External violation			-0.183
			(0.138)
Internal violation			0.402
			(0.144)
Inappropriate behavior			0.242
			(0.183)
Average predicted M_F and M_T	2.56	2.82	
Average predicted η_F and η_T	1.03	1.29	

Note: Maximum likelihood estimation of the Ordered Probit model described in Section 3.3 The dependent variable is an ordinal indicator taking value 1 if the firm keeps the worker, 2 if the worker is fired and goes to trial and 3 if the worker is fired and accepts the firing. The excluded hierarchical level dummy denotes blue collars. The excluded type of misconduct denotes unjustified absence episodes. The average predicted M_F and M_T are defined respectively in equations (11) and (10). The average predicted η_F and η_T are defined respectively after equations (14) and (15). Standard error in parentheses. The sample size is 1862.

Table 7: Decisions of judges by court levels

Court level	All judges			Final judges		
	Confirm	Overrule	n. cases	Confirm	Overrule	n. cases
Pretura	62	28	90	35	7	42
	(69)	(31)	(100)	(83)	(17)	(100)
Tribunale	30	13	43	21	5	26
	(70)	(30)	(100)	(81)	(19)	(100)
Cassazione	13	2	15	13	2	15
	(87)	(13)	(100)	(87)	(13)	(100)
Total	105	43	148	69	14	83
	(71)	(29)	(100)	(83)	(17)	(100)

Note: The number of final decisions (83) is smaller than the number of trials (86) because 3 cases are still waiting for a final decision. There are 90 (instead of 86) decisions at the first level (*Pretura*) because at this level the standard decision is sometimes preceded by a preliminary urgency procedure. Percent frequencies by row in parentheses.

Table 8: Determinants of a pro-firm decision: the effect of working in the south

Sample	Marginal effect of working in south	Standard error of marginal effect	P-value of the one-sided test	Sample size
Final judges	-0.134	0.081	0.048	83
All judges	-0.184	0.079	0.012	148
Judges in *Pretura*	-0.147	0.108	0.088	90
Judges in *Tribunale*	-0.265	0.130	0.027	43

Note: The table reports the effect of working in the south (as opposed to the north) on the probability that the judge confirms the firing. The effect is estimated with a Probit model and is computed at the sample average. The model also includes the following control variables (coefficients not reported to save space): age, dummies for manager and white collar, time dummies to capture three different phases in the historical development of Italian industrial relations (1979-1982, 1983-1986 and 1987-1995), misconduct gravity, dummy for repetition and dummies for type of misconduct. Standard error in parentheses (adjusted for within-individual correlation when the sample of all judges is used). The null hypothesis of the one-sided test is that the effect of working in the south is zero or positive. The alternative is that it is negative.

Table 9: Determinats of a pro-firm decision: the effect of the unemployment rate

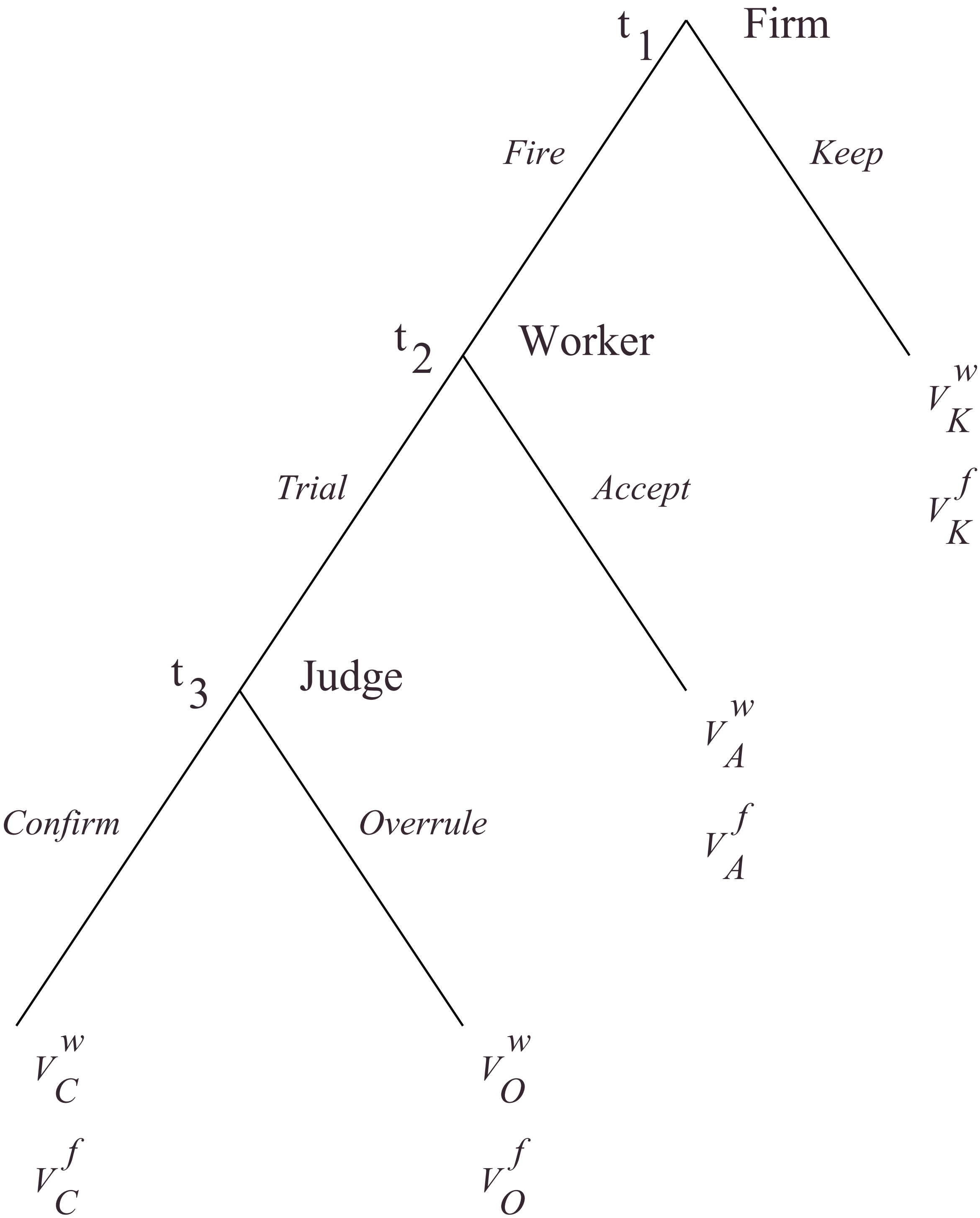
Sample	Marginal effect of working in south	Standard error of marginal effect	P-value of the one-sided test	Sample size
Final judges	-0.013	0.007	0.060	83
All judges	-0.017	0.008	0.016	148
Judges in *Pretura*	-0.012	0.010	0.125	90
Judges in *Tribunale*	-0.030	0.015	0.028	43

Note: The table reports the marginal effect of the unemployment rate on the probability that the judge confirms the firing. The effect is estimated with a Probit model and is computed at the sample average. The model also includes the following control variables (coefficients not reported to save space): age, dummies for manager and white collar, time dummies to capture three different phases in the historical development of Italian industrial relations (1979-1982, 1983-1986 and 1987-1995), misconduct gravity, dummy for repetition and dummies for type of misconduct. Standard error in parentheses (adjusted for within-individual correlation when the sample of all judges is used). The null hypothesis of the one-sided test is that the effect of working in the south is zero or positive. The alternative is that it is negative.

Table 10: Sensitivity analysis on the effect of the unemployment indicators on the probability of a pro-firm decision

Labor market indicator	$\rho = 0.0$	$\rho = 0.2$	$\rho = 0.4$	$\rho = 0.6$	$\rho = 0.8$
Working in the south	-0.134	-0.142	-0.151	- 0.164	-0.186
	(0.079)	(0.080)	(0.080)	(0.081)	(0.083)
	(0.091)	(0.075)	(0.060)	(0.044)	(0.025)
Unemployment rate	-0.013	-0.014	-0.014	- 0.15	-0.17
	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)
	(0.09)	(0.07)	(0.06)	(0.04)	(0.02)
Sample size	83	83	83	83	83

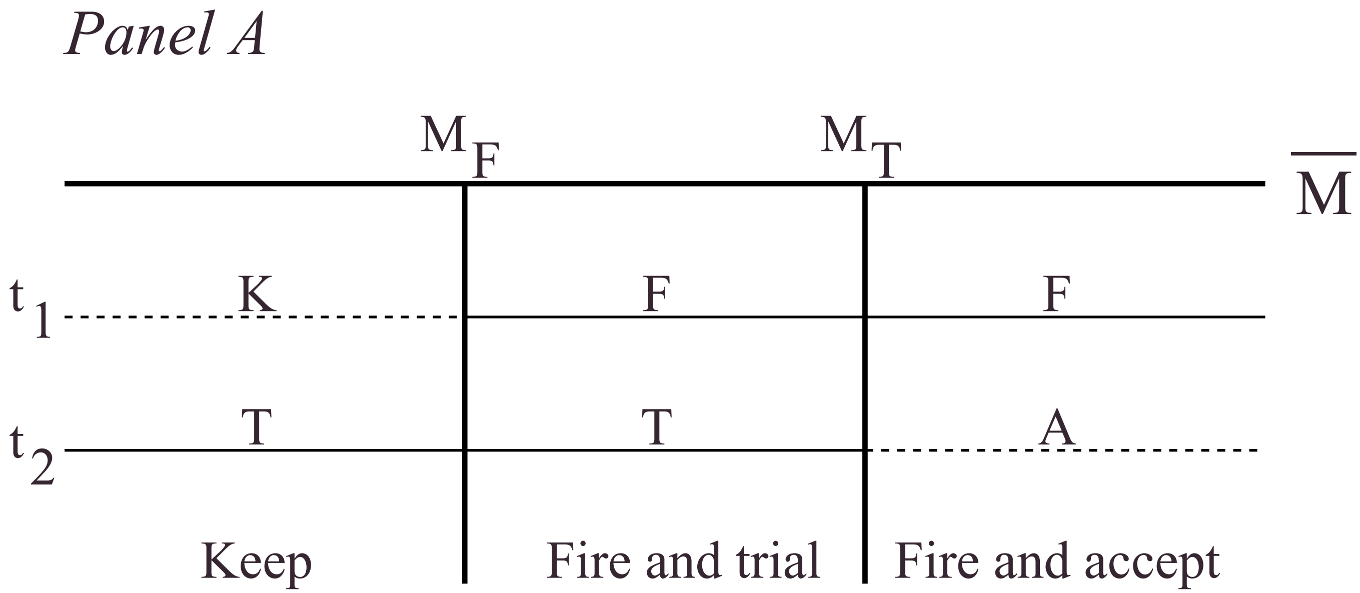
Note: The two panels of the table report estimates of the marginal effect (respectively) of working in the south and of the unemployment rate on the probability that the final judge's decision confirms the firing. The marginal effects are estimated with the model described in Section 3.5 and are computed at the sample average for different values of the coefficient ρ which measures the correlation between $\epsilon + \eta$ and η. In each panel the second row reports standard errors and the third row reports the P-values of the test that the effect is zero. The model also includes the following control variables (coefficients not reported to save space): age, dummies for manager and white collar, time dummies to capture three different phases in the historical development of Italian industrial relations (1979-1982, 1983-1986 and 1987-1995), misconduct gravity, dummy for repetition and dummies for type of misconduct.



$$V_K^w > V_O^w > V_A^w > V_C^w$$

$$V_A^f > V_C^f > V_K^f > V_O^f$$

FIG. 1: The game



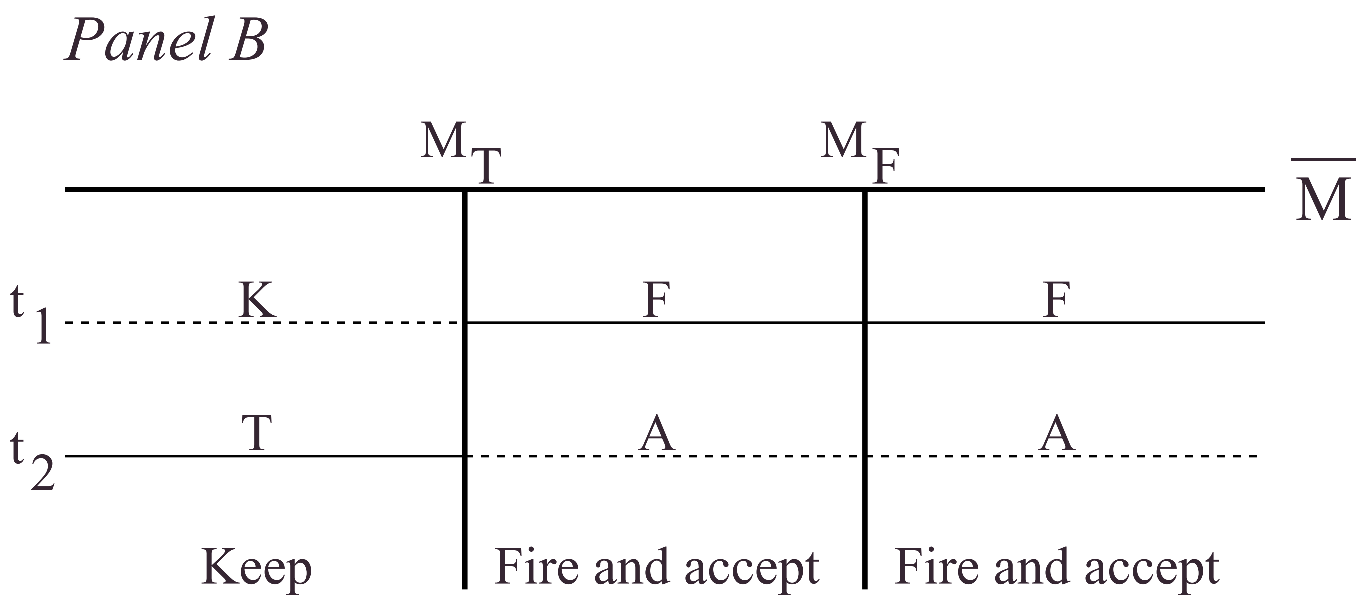


FIG. 2: The outcomes