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Are judges biased by labor market conditions?

The selection of firing litigations for trial in an italian firm

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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.

JEL Classification: J41, J49, J52, J65.
Keywords: Internal labor relations, conflict resolutions, firing costs.

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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 seem 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 decision of the firm to fire a worker (instead of keeping him or her on payroll), which is followed by the choice of the worker to go to trial (instead of accepting the firing and searching for a new job): 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, on the judge's preferences, and on the alternative options that at each step are feasible. Hence, an empirical evaluation of judges' preferences must take into account this source of selection bias, and possibly try to reconstruct the whole process instead of considering just 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

[1] The classic references are Lazear (1990), Bentolila and Bertola (1990), Bertola (1990). More recently, Acemoglu and Angrist (2001) 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.

costs via the effect on courts' decisions, multiple 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 allows us to reconstruct the entire selection process and not only to examine the cases brought to the attention of the judges.

Taking into consideration the non-randomness of the selection process, we are able to show that in regions where unemployment is high the gravity of the cases of misconduct going to trial is not less serious than in the other regions. Actually, depending on the specification of the model, the gravity of the cases going to trial increases with the regional unemployment rate, although the statistical significance of this result is borderline. Therefore, if judges decided only on the basis of the gravity of misconduct, the probability of a pro-firm decision should be the same in all regions, or if anything larger where the unemployment rate is higher. We find, instead, the opposite result: judges are less likely to decide in favor of firms where unemployment is high, despite the fact that equivalent or 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 the effect that we uncover may be confounded by other local environmental factors. The evidence, however, suggests that these other factors, if anything, tend to reduce the consequences of the judges'bias due to labor market conditions.

Related to our results are the findings of Donohue and Siegelman (1991) who show that the number of anti-discrimination cases filed to court in the US increases with the worsening of labor market conditions, suggesting that anti-discrimination laws are becoming a tool to protect the existing position of incumbent workers. This is an example similar to ours of the endogeneity of firing costs induced by the judicial system because of the interference of labor market conditions. An example of effects going in the opposite direction is instead offered by Autor (2000) who shows that the recent growth of Temporary Help Agencies in the US is a causal effect of the decline of the "Employment at Will" doctrine in the legislation and jurisprudence of US states. In this case, it is the judicial attitude towards firing litigations that modifies labor market equilibria.

This paper is organized as follows. Section 2 describes the data and gives an introductory statistical and institutional overview of the selection process. 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.

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 fulfillment 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.

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 percent 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.

To evaluate this propensity, however, it may be misleading to look only at the cases that appear in front of a judge, because these are not randomly selected from the whole population of misconduct episodes. When such an episode is brought to the attention of the personnel office and notified to the worker, 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. The sequence of these choices, which are regulated by collective agreements and by the Law, is the following:

First stage: 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).

[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.

[3] For a description of the institutional details concerning dismissal regulations see Carabelli (1992) and De Roo and Jactenberg (1994)

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.[4]

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.[5] 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 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, altogether, 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 percent and the average tenure has grown from 12 years in 1975 to 17 years in 1995.[6] 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.

Descriptive statistics on the 1862 male workers involved in misconduct episodes are given in Table 2. The last line of the table summarizes the distribution of 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.[7] The variation of regional unemployment

[4] 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.

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

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

[7] There are 20 administrative regions in Italy.

rates in the sample is quite large, ranging between 3.4 percent and 26.8 percent with an average of 10.9 percent and a median of 9.2 percent. We exploit the variability of this indicator to explore whether judges are biased by labor market conditions.

Following the methodology described in Benvenuti (1997), each episode has been classified, using the information contained in the letters of notification and of punishment, in a grid structured around 4 types of misconduct and 8 levels of gravity. This classification has been discussed in a series of interviews with members of the personnel office, but, being based on the documents which were made available to us it is clearly a noisy measure of the gravity of the case as perceived by the judge.[8] Nevertheless, some interesting facts emerge from its analysis.

Table 3 reports the distribution of misconduct episodes across observable gravity levels by outcome of the selection process and level of the local unemployment rate. First, 7 percent of the cases reach the trial stage where regional unemployment is high, while the same stage is reached by only 3 percent of the cases where unemployment is low.[9] This suggests, in line with the already quoted findings of Donohue and Siegelman (1991), that incumbent workers are more likely to use the judicial system to protect their jobs when labor market conditions are bad. Second, 27 percent of the cases in the top gravity level are tried if the unemployment rate is high, while the same happens to only 14 percent of the top gravity cases where unemployment is low. In other words, a higher unemployment rate increases the chances that a worker goes to trial even if the misconduct is very serious. Third, at the opposite end of the gravity spectrum, in 9 percent of the cases occurring in low unemployment regions the worker accepts the firing while this happens in only 2 percent of the cases in high unemployment regions. Hence, where the unemployment rate is low workers seem relatively more likely to accept a firing decision even if the gravity of the misconduct is less serious. It is, however, puzzling that, independently of unemployment, at very low level of gravity there are firing decisions that are accepted by workers.[10] Finally and closer to expectations, the acceptance rate increases with gravity while the keeping rate decreases. However, the keeping rate seems to differ less by level of the unemployment rate, particularly at high gravity levels.

The rest of this paper is devoted to going beyond this descriptive evidence in order to establish whether and why the unemployment rate affects the selection of firing litigation for trial and the average gravity of the cases reaching the trial stage. Only on the basis of this evidence we will be able to interpret the correlation between labor market conditions and the decisions of judges.

[8] For most misconduct episodes the classification into 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 judgment of the personnel officers. For further details on the types of misconduct episodes see Ichino and Ichino (1999).

[9] We define regional unemployment as high if it is higher than or equal to the median of the regional unemployment rates across regions and years.

[10] The model we propose below offers, however, a possible explanation of this puzzle.

3 A model of the selection process

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 players involved, the firm (f), the worker (w) and the judge (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[11], and continues with the following sequence of steps:

t_1 *the firm decides whether to keep the worker (K) 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. According to the different outcomes, the worker either remains in the bank (K and O), with a stream of wages $\{w_t\}$ over a certain time horizon, or he is fired and has to find a new job, with expected wages $\{w_t^*\}$. Our main assumption is that a laid off worker expects a significant fall in income, i.e. $w_t \geq w_t^*$. This assumption is justified not only by the fact that in Italy the banking sector pays on average higher wages than other sectors[12], but more generally by the fact that $\{w_t^*\}$ represents the stream of expected labor earnings of a displaced worker who has to find a new job and is likely to experience a long lasting earning loss even if he remains in the banking sector.[13] The worker's utility is assumed to depend, as a first order effect, on the stream of expected wages. Hence, the major loss from being fired is due to the fall in income, which is likely to be more pronounced if the firing takes place in a weak labour market.[14] Denoting with c^w the cost of a trial for the worker and with δ the discount factor, his utility in the different outcomes is therefore $V_K^w = \sum \delta^t w_t$ if the firm keeps him, $V_O^w = \sum \delta^t w_t - c^w$ if the judge re-enters him in the firm overruling the firing, $V_A^w = \sum \delta^t w_t^*$ if the worker accepts to be fired and searches for a new job, and $V_C^w = \sum \delta^t w_t^* - c^w$ if this search occurs after an adverse decision of the judge.

[11] 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 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.

[12] This is confirmed by our calculations, available upon request, based on the *Survey of Household Income and Wealth* collected by the Bank of Italy.

[13] Starting with Jacobsen et. al (1993) a wide literature has measured long lasting earning losses for workers displaced from plant closure. The losses are likely to be even larger when the displacement is originated by the behavior of the worker.

[14] Other utility losses can be easily imagined, as the psychic cost of being fired and that of being unemployed. These might become important, in addition to the wage loss, when side payments can be used to find a private settlement, and they can make this outcome more difficult to reach. We'll discuss this issue later on.

In the following we assume that the cost of trial c^w for the worker is small, in the sense that $\sum \delta^t(w_t - w_t^*) > c^w$: this seems a realistic assumption in our case where the worker receives legal assistance by the union. Hence, in our model, we obtain the following ranking of outcomes in terms of worker's utility: $V_K^w > V_O^w > V_A^w > V_C^w$.

Consider next the profits of the firm in the different outcomes:[15] our basic assumption, which fits the features of the Italian labor market, is that a worker who misbehaved has a productivity lower than the average productivity in the market, but that institutional and industrial relations rigidities prevent the wage from adjusting to such differences. More precisely, a worker responsible for a misconduct has a marginal revenue product MRP_t lower than the expected marginal revenue product MRP_t^* of a new worker hired from outside, while the wage for both types of workers is w_t.[16] Hence, denoting with c^f the cost of going to trial for the firm, its per-worker profits are $\Pi_A^f = \sum \delta^t(MRP_t^* - w_t)$ if the misbehaving worker accepts to be fired and is replaced with a new one, $\Pi_C^f = \sum \delta^t(MRP_t^* - w_t) - c^f$ if the new hiring occurs after the judge confirms the firing decision, $\Pi_K^f = \sum \delta^t(MRP_t - w_t)$ if the firm decides to keep the worker after a misconduct, and $\Pi_O^f = \sum \delta^t(MRP_t - w_t) - c^f - D$ if the judge rules that the firm has to keep the misbehaving worker, with the additional fine D to be paid to the Social Security System. We assume that the costs of trial are not high for the firm in the sense that $\sum \delta^t(MRP_t^* - MRP_t) > c^f$. Then the ranking of the profits in the different outcomes is $\Pi_A^f > \Pi_C^f > \Pi_K^f > \Pi_O^f$.

The ranking of utilities and profits across outcomes described above is referred to a generic worker, and is assumed to hold for each worker, although the stream of wages payed and the marginal productivity might be different across workers due to experience, age, sex or other personal characteristics. Moreover, while the labor market conditions have a first order effect on the utility of a displaced worker, no comparable effect is assumed regarding the profits of the firm in any of the states.

The judge's decision rule is a function of her perception of the misconduct gravity, M, and of a legal standard M^j that summarizes the judge's interpretation of the law: if $M \geq M^j$, the judge confirms the firm's firing decision. The legal standard defines how the concept of just cause is translated in the specific class of misconducts. This assumption implies that the legal standard M^j is independent of extra-judicial concerns and in particular independent 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.

Given the gravity of misconduct M as perceived by the judge, the worker and the firm receive an unbiased private signal $\bar{M}^w$ and $\bar{M}^f$ respectively[17] of the misconduct gravity M, such that the

[15] Given the non-competitive nature of the product market in which our bank operates, these profits can be assumed to be non-zero.

[16] One may claim that, even in a market characterized by wage rigidities, the salary of a new worker and that payed to a worker who misbehaved might be different. We prefer to maintain the assumption of equal wages to simplify the notation. In Section 3.3 we show that the equilibrium remains quite similar even if some wage differential is admitted.

[17] Given the decision rule of the judge, we can equivalently assume that the firm and the workers make their decisions based on two signals of the expected value of the legal standard M^j while they evaluate the misconduct

identities $M = \bar{M}^w + \epsilon^w$ and $M = \bar{M}^f + \epsilon^f$ hold; the two errors are drawn from a continuous joint distribution $g(\epsilon^w, \epsilon^f)$ which is known by the parties, with $\epsilon^i \perp \bar{M}^i$, mean $\mu^i = 0$, standard deviation σ^i finite for $i = \{w, f\}$, and covariance $\sigma^{wf} \geq 0$. These signals correspond to the pair of (worker and firm) types that characterize a specific case. Note that we allow for (non negative) correlation between the two errors while usually the literature on the occurrence of a trial based on Divergent Expectations[18] assumes independency: in our case, in fact, we think that some degree of *correlation* is more realistic, given that all cases are treated by the same pool of lawyers and that the relevant evidence is largely shared by the two parties. For the same reason we consider our *symmetric* imperfect information setting as more appropriate than the asymmetric information case analyzed in Bebchuk (1984) or Nalebuff (1987).

3.2 Equilibrium analysis

We have described a dynamic game of imperfect information where the players' types are defined by their signal $\bar{M}^f$ and $\bar{M}^w$. The worker and the firm have to form beliefs on the later moves along the game three: both players therefore have to assess the likelihood that the judge will overrule the decision; moreover, the firm has to assess the likelihood that a fired worker will litigate. Given these beliefs, the players have to select a strategy that prescribes to each type (signal) which action to take. As usual, the strategies must be optimal given the beliefs and the beliefs must be consistent with the (Perfect Bayesian) equilibrium strategies.

Let us introduce the beliefs of the agents: $p^f(\bar{M}^f) = Pr(O \mid \bar{M}^f)$ is the firm's probability assessment that the judge will overrule the firing decision, and $p^w(\bar{M}^w) = Pr(O \mid \bar{M}^w)$ is the worker's assessment. Each forecast depends on the agent type, i.e. is constructed given the signal received, and must be consistent with the strategies played, as we shall impose later on. A reasonable property, to be checked in the sequel, is that the probability assessments be continuous and decreasing in the signal received, i.e. when the perceived misconduct is more serious the probability that the judge will overrule the firing is lower.

Then, the worker's expected utility of a trial, $V_T^w(\bar{M}^w) = p^w(\bar{M}^w)V_O^w + (1 - p^w(\bar{M}^w))V_C^w$, is decreasing in the signal received $\bar{M}^w$ (his type), while the firm's expected profits of a trial, $\Pi_T^f(\bar{M}^f) = p^f(\bar{M}^f)\Pi_O^f + (1 - p^f(\bar{M}^f))\Pi_C^f$, increase with the signal $\bar{M}^f$: in both cases, in fact, a higher signal increases the likelihood that the judge will confirm the firing, an outcome over which the parties have conflicting preferences.

At t_2 the worker will choose to litigate if $V_T^w(\bar{M}^w) \geq V_A^w$. Let us define M_T as the worker's type such that $V_T^w(M_T) = V_A^w$, i.e. as the signal such that the worker is indifferent between going to trial and accepting the firing decision. Then, given the continuity and monotonicity of $p^w(\bar{M}^w)$, the optimal strategy for the worker given his type (signal) $\bar{M}^w$ and beliefs $p^w(\bar{M}^w)$ takes the form of a cut-off rule: go to trial if $\bar{M}^w \leq M_T$. Substituting the utilities from the expressions specified in the previous section and rearranging, the threshold M_T is implicitly defined by the condition:

M exactly as the judge does.

[18] See Priest and Klein (1984) and Waldfogel (1995, 1998). The case of perfectly correlated (i.e. common) signals is analyzed in Ichino, Polo, Rettore (2001).

$$p^w(M_T)\sum \delta^t(w_t - w_t^*) = c^w.$$

Since w_t^* falls when unemployment is high, the equality is restored with a lower $p^w(\cdot)$ corresponding to a higher value of M_T. Hence, in a weaker labor market the worker is more willing to tempt the gamble of a trial and the threshold M_T increases.

At t_1 the firm has to choose whether to fire the worker, taking into account the likelihood that the fired worker will go to trial. Let $q^f(\bar{M}^f) = Pr(\ T \mid \bar{M}^f)$ be the firm's belief that the worker will litigate, based on the signal received $\bar{M}^f$: since the signals $\bar{M}^f$ and $\bar{M}^w$ are correlated, we expect (and check in the sequel) that q^f is continuous and decreasing in $\bar{M}^f$: observing a higher signal, the firm expectations that the worker will litigate will be lower. Then the expected profits from firing is $q^f(\bar{M}^f)\Pi_T^f(\bar{M}^f) + (1 - q^f(\bar{M}^f))\Pi_A^f$ and the firm will prefer to fire rather than keep the worker if

$$\Pi_A^f - \ \Pi_K^f \geq q(\bar{M}^f)\left[\Pi_A^f - \Pi_T^f(\bar{M}^f)\right].$$

Notice that as the signal $\bar{M}^f$ falls, the RHS increases: the firm becomes less willing to fire, both because it anticipates that the worker will litigate more frequently (q^f goes up) and because the judge is expected to be more inclined to overrule (Π_T^f falls). Let us define the signal M_K such that the condition above holds as an equality. Then, given the continuity and monotonicity of $p^f(\bar{M}^f)$ and $q^f(\bar{M}^f)$, the firm will fire if $\bar{M}^f \geq M_K$. Notice that since, according to our assumptions, the relevant profits are not significantly influenced by the labor market condition, this second threshold does not depend, *prima facie,* on the unemployment rate.

We have identified the equilibrium strategies of the firm and the worker of different types (signals) given the beliefs p^w, p^f and q^f. These strategies take the form of cut-off rules: the firm will fire if its signal is above the threshold M_K and the worker will litigate if his signal falls below the level M_T. We have now to find the equilibrium beliefs, that must be consistent with those strategies.

We remind that $M = \bar{M}^w + \epsilon^w$ and $M = \bar{M}^f + \epsilon^f$, with the two errors drawn from a continuous joint distribution $g(\epsilon^w, \epsilon^f)$. Hence, we can write $\bar{M}^w = \bar{M}^f + \epsilon^f - \epsilon^w$, i.e. the firm's forecast of the worker signal is given by the firm's signal plus the difference in the error terms. The firm's belief that the worker will go to trial is therefore $q = Pr(\bar{M}^w \leq M_T \mid \bar{M}^f)$ or

$$q = Pr(\epsilon^f - \epsilon^w \leq M_T - \bar{M}^f) = \int_{-\infty}^{+\infty}\int_{-\infty}^{M_T - \bar{M}^f} g(\epsilon^w + v, \epsilon^w)d\epsilon^w dv$$

where $v = \epsilon^f - \epsilon^w$ is the difference in the error terms. The firm's beliefs that the judge will overrule the firing decision, taking into account the worker equilibrium strategy to litigate, is:

$$p^f = Pr(\epsilon^f \leq M^j - \bar{M}^f \mid \epsilon^f - \epsilon^w \leq M_T - \bar{M}^f) = \frac{\int_{-\infty}^{M^j - \bar{M}^f}\int_{-\infty}^{M_T - \bar{M}^f} g(\epsilon^f, \epsilon^f - v)d\epsilon^f dv}{\int_{-\infty}^{+\infty}\int_{-\infty}^{M_T - \bar{M}^f} g(\epsilon^f, \epsilon^f - v)d\epsilon^f dv}$$

Finally, the worker's beliefs, once he is fired by the firm, that the judge overrules this decision, is

$$p^w = Pr(\epsilon^w \leq M^j - \bar{M}^w \mid \epsilon^f - \epsilon^w \geq M_K - \bar{M}^w) = \frac{\int_{-\infty}^{M^j - \bar{M}^w} \int_{M_K - \bar{M}^w}^{+\infty} g(\epsilon^w + v, \epsilon^w) d\epsilon^w dv}{\int_{-\infty}^{+\infty} \int_{M_K - \bar{M}^w}^{+\infty} g(\epsilon^w + v, \epsilon^w) d\epsilon^w dv}$$

Notice that in all cases the beliefs take the general form of cumulative density functions from the joint distribution $g(\cdot)$ which is assumed to be continuous. Hence, the equilibrium beliefs are continuous and monotone, as we assumed to derive the equilibrium strategies.

The following proposition summarizes the Perfect Bayesian equilibrium outcomes (in bold the final nodes) of the game as a function of the worker and firm types (signals).

Proposition 1 (Equilibrium of the game)

- *For $\bar{M}^f \leq M_K$ and any signal $\bar{M}^w$ the firm **keeps** the worker;*
- *For $\bar{M}^f > M_K$ and $\bar{M}^w \leq M_T$ the firm fires the worker, who goes to **trial** (with possible outcomes **confirm** and **overrule**);*
- *For $\bar{M}^f > M_K$ and $\bar{M}^w > M_T$ the firm fires the worker, who **accepts** the firm's decision.*

3.3 Reasons for the occurrence of a trial

The equilibrium outcomes defined in Proposition 1 are described in Figure 2. With the help of this figure it is easier to understand the two main reasons that explain the occurrence of a trial in our case study. First, if the worker receives a signal $\bar{M}^w$ much more favorable than the signal $\bar{M}^f$ of the firm, he is over-optimistic about the outcome of the trial and more willing to litigate. This is an example of the traditional explanation offered by the Divergent Expectations approach.[19] In Figure 2, this type of trial occurrence corresponds to the north east portion of the "Trial" area, above the diagonal defined by $\bar{M}^w = \bar{M}^f$.

However, even if the signals are very correlated (i.e. there is no divergence of expectations), there is still an area around the diagonal $\bar{M}^w = \bar{M}^f$ were the parties may decide to litigate and go to trial. This occurs when the level of misconduct is intermediate ($M_K < \bar{M}^w \simeq \bar{M}^f \leq M_T$), i.e. not so severe to induce the worker to accept the firing and not so negligible to suggest the firm to forgive, but the stakes of the two parties are asymmetric. The existence of Asymmetric Stakes[20] is in this case the reason why a trial occurs: the worker gains more than the firm loses from a trial.

Looking at Figure 2, the two complementary explanations of the occurrence of a trial offered by the Divergent Expectations (DE) and the Asymmetric Stakes (AS) approaches, correspond to pairs of signals (types) located, respectively, off or along the diagonal $\bar{M}^w = \bar{M}^f$. If the signals

[19] See Priest and Klein (1984) and Waldfogel (1995, 1998).

[20] The case of pure asymmetric stakes is analyzed in Ichino, Polo, Rettore (2001).

are very mismatched, we can end up with a trial even when the stakes are rather similar (DE)[21], but with correlated signals we can still have a trial if the worker gains more than the firm looses from a trial (AS).

One may wonder why a trial occurs in this latter case, even if a private settlement that allows to save judgement costs might seem more convenient to the parties. In order to discuss this possibility, we will analyze two alternative versions of the model that allow for some sort of side payment between the parties.

Consider first the case in which, if the worker is kept in, he receives a reduced salary $w_t' < w_t$.[22] The profits Π_K^f from keeping the worker become now higher with respect to our benchmark case. If the firm fires the worker, the game remains the same as before, and the worker will go to trial, as in the benchmark case, if his signal is sufficiently low, i.e. if $\bar{M}^w \leq M_T$. For the same reason, the firm's belief that the worker will litigate, $q(\bar{M}^f)$, does not change in the present case. The firm, as we established above, will fire (and go to trial) if $\Pi_A^f - \Pi_K^f \geq q(\bar{M}^f)\left[\Pi_A^f - \Pi_T^f(\bar{M}^f)\right]$. With higher profits from keeping the worker, the LHS of this expression becomes smaller. Since the RHS is decreasing in $\bar{M}^f$, the threshold M_K that solves the expression as an equality increases. The region $\bar{M}^f \geq M_K$ and $\bar{M}^w \leq M_T$ where trial occurs therefore shrinks, and it may even happen that it moves completely above the diagonal $\bar{M}^w = \bar{M}^f$. In this case when the signals are similar we have no trial, while the only explanation why the parties litigate is their divergent expectations.

The second case involves a side payment s from the firm to the worker if he accepts to be fired. Now it is the worker's utility from accepting the trial, V_A^w, that increases with respect to the benchmark case, and the condition $V_T^w(M_T) = V_A^w$ is reached with a lower threshold M_T, being the worker's expected utility from a trial decreasing in the signal received. Hence, a larger payment s makes the worker more likely to accept the firing decision, enlarging the "Accept" area and shrinking the "Trial" region. In terms of Figure 2, as in the situation of a wage cut discussed above, the cases along the diagonal going to trial because of Asymmetric Stakes could disappear, but a trial would still be possible in the presence of divergent expectations, i.e in the north eastern portion of the picture.

To summarize, side payments, in the form of wage cuts or incentives to quit, reduce (or even eliminate) the set of misconducts that are brought before the judge due to AS, while DE can still lead to this outcome. In the Italian institutional setting which is relevant for our case study there are, however, two constraints that can limit the ability of the parties to avoid the litigation. First, the firm cannot reduce the wage below the minimum established by union contracts at the National and firm level. Hence, any private agreement to cut the wage below this minimum keeping the worker on payroll would be non credible. The alternative tool of the side payment s payed to the fired worker is bounded above by the concern that if a worker accused of misconduct

[21] Note that DE may very well explain the *prima facie* puzzling evidence (see footnote 10) of Table 3 concerning the existence of firing decisions accepted by (very pessimistic) workers at low levels of observed (by the econometrician) gravity.

[22] For example, the contractual minimum, presumably lower than the initial wage of the worker before the misconduct.

is rewarded with a high side payment, that might represent an implicit incentive for the colleagues to relax their behavior as well. Furthermore, the worker has always the right to sue the firm for unfair dismissal even after having received an incentive to quit, if he can show that he was induced to accept the deal against his will.[23] Hence, the side payment needed to convince the worker to accept the firing decision may be too high to meet this second set of constraints.

We conclude therefore that in our case not only the DE but also the AS explanations of trials can play a role. Moreover, since the lawyers of the firm and of the union involved in all the cases share the same kind of experience and information, the signals are likely to be highly correlated. As a result, the Asymmetric Stakes cannot be dismissed as a relevant explanation to understand the behavior of the parties in our case study.

3.4 From theory to data

In the theoretical model the firm and the worker have imperfect information on M, the judge's evaluation of the misconduct, through their own unbiased private signals $\bar{M}^f$ and $\bar{M}^w$. In the econometric model, the external observer (EO hereafter) is assumed to know that the legal standard $M^j = M^j(U)$ is (possibly) a function of the unemployment rate. Moreover the EO knows that the two signals $\bar{M}^f$ and $\bar{M}^w$ received by the firm and the worker can be written as a (linear) function of the observed misconduct characteristics z and of an unobservable (to the EO) component:

$$\bar{M}^f = \lambda'_M z + \eta^f \quad (1)$$
$$\bar{M}^w = \gamma'_M z + \eta^w. \quad (2)$$

where η^f and η^w are *i.i.d.* across misconduct episodes and jointly distributed according to the cdf function $\Phi(\cdot,\cdot)$. Hence, the EO is able to reconstruct the signal of the true misconduct received by the firm and the worker up to the random terms η^f and η^w.

The EO knows also how the wages in the different outcomes (and therefore the utilities of the worker) depend on the personal characteristics (age, sex, etc.) and on the unemployment rate; analogously, the EO knows how the personal characteristics influence the marginal revenue product and therefore the firm's profits. Hence, the EO is able to express the thresholds $\bar{M}_K$ and $\bar{M}_T$ as (deterministic, linear) functions of the personal characteristics X and of the unemployment rate U. Therefore the thresholds can be written:

$$M_K = \lambda_0 + \lambda'_1 X + \lambda_2 U, \quad (3)$$
$$M_T = \gamma_0 + \gamma'_1 X + \gamma_2 U. \quad (4)$$

Note that according to the theoretical model we have no reason to expect M_K to depend on U, but we allow for a test of this possibility in the empirical specification.

[23] There are cases of this kind in our sample.

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

From the equilibrium analysis of Section 3.2 , the firm keeps the worker if and only if $\bar{M}^f < M_K$. Hence, the probability that the EO observes K is:

$$Pr(K) = Pr(\eta^f < \eta_K) = \Phi^f(\eta_K), \tag{5}$$

where $\eta_K = \lambda_0 + \lambda_1' X + \lambda_2 U - \lambda_M' z$ and Φ^f is the marginal cdf of η^f.

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

$$Pr(T) = Pr(\eta^f > \eta_K, \eta^w < \eta_T) = \Phi^w(\eta_T) - \Phi(\eta_K, \eta_T), \tag{6}$$

where $\eta_T = \gamma_0 + \gamma_1' X + \gamma_2 U - \gamma_M' z$ and Φ^w is the marginal cdf of η^w.

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

$$Pr(A) = Pr(\eta^f > \eta_K, \eta^w > \eta_T) = 1 - \Phi^w(\eta_T) - \Phi^f(\eta_K) + \Phi(\eta_K, \eta_T). \tag{7}$$

The decision of the judge is based on a comparison of the legal standard M^j and the perceived misconduct M, where the legal standard depends (possibly) on the unemployment rate U:

$$M^j = \delta_0 + \delta_1 U. \tag{8}$$

The goal of the analysis is to establish whether δ_1 is positive, in which case the judge would be biased in favor of workers by worse labor market conditions. However, not all misconducts are filed before the judge, but only those that 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 $\eta^f > \eta_K$ and $\eta^w < \eta_T$. Therefore, the EO evaluates the probability that the judge confirms the firing decision, conditional on the worker filing the case, as:

$$Pr(C \mid T) = Pr(M \geq M^j \mid \eta^f > \eta_K, \eta^w < \eta_T) = L(\theta_0 + \theta_1' z + \theta_2' x + \theta_3 U), \tag{9}$$

where $L(\cdot)$ is the cdf of the unobservables (to the EO) in M conditional on $\eta^f > \eta_K$ and $\eta^w < \eta_T$. In general, the coefficients θ entering $\Pr(C|T)$ are not those in the structural equations, since they measure the net effect of marginally changing z, x 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. In particular, θ_3 is not δ_1. For this reason, establishing whether δ_1 is positive requires an appropriate testing strategy which we are now ready to characterize in the next section. This characterization will make clear that our goal is not to estimate the structural parameters of the theoretical model, but only to identify, in a reduced form framework, the minimum set of results concerning the effect of unemployment on the decision thresholds of the parties and the judge which would allows us to draw conclusions on whether labor market conditions bias judges criteria.

3.5 The 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. $\delta_1 \neq 0$. The problem is that, under the assumptions of the econometric model described in the previous section, we cannot identify and estimate the structural parameter δ_1. Therefore we follow an indirect way to test the hypothesis of interest.

When the EO has less information than the parties and the parties do not share the same information, which is our case, the testing strategy is complicated by the fact that, from the EO viewpoint, the unobservables entering the selection process are correlated to the unobservables entering the judge's decision. 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 the litigated 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 equally or more serious misconducts 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.[24] Our testing strategy is precisely aimed at drawing information from the fact that the gravity of the cases selected for trial depends on how the thresholds M_T and M_K change with U. For this to be possible the following proposition must hold.

Proposition 2 (Signals received by the parties and gravity perceived by the judge)
The mean value of the misconduct gravity as perceived by the judge, conditional on the two signals observed respectively by the firm and the worker, $E\{M \mid \bar{M}^f, \bar{M}^w\}$, increases with the two signals.

While a formal proof of the proposition is derived in Appendix 6.1 at an intuitive level the result is a straightforward consequence of the unbiasedness of both $\bar{M}^f$ and $\bar{M}^w$ as signals of M. This proposition says that if we knew the signals we would also know what the judge would

[24] Similarly in the opposite case, if equally or 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.

think (on average) about the gravity of the misconduct. In terms of Figure 2, this means that we could map each point of the area "fire and TRIAL" into a gravity of misconduct as perceived by the judge at trial. Unfortunately we cannot observe the signals but we can estimate how the decision thresholds of the two parties change with unemployment. In this way we can infer how the combination of signals leading to trial changes when unemployment increases (i.e. how the area "fire and TRIAL" of Figure 2 changes). Thanks to Proposition 2, knowing how the composition of signals leading to trial is modified by unemployment we can infer how the average gravity of the misconducts brought to trial changes in worse labor market conditions.

This possibility suggests the testing strategy summarized in the following proposition.

Proposition 3 (Testing strategy)

- *If*

$$\frac{dM_T}{dU} \geq 0,\ \frac{dM_K}{dU} \geq 0 \ \textit{and}\ \frac{dPr(C|T)}{dU} \leq 0 \tag{10}$$

with at least one strict inequality holding, then

$$\delta_1 > 0. \tag{11}$$

- *If*

$$\frac{dM_T}{dU} \leq 0,\ \frac{dM_K}{dU} \leq 0 \ \textit{and}\ \frac{dPr(C|T)}{dU} \geq 0 \tag{12}$$

with at least one strict inequality holding, then

$$\delta_1 < 0. \tag{13}$$

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

To exemplify, consider the case in which $\frac{dM_T}{dU} \geq 0$, $\frac{dM_K}{dU} \geq 0$ and $\frac{dPr(C|T)}{dU} \leq 0$. The first two inequalities implies that, as U increases, the mean values of both $\bar{M}^w$ and $\bar{M}^f$ *evaluated on the cases brought to court* increase as well. Then, according to Proposition 2 we can conclude that, as U increases, also the mean gravity of the cases brought to court increases. If we further observe that the third inequality holds, i.e. as U increases judges are more likely to overrule the firing decisions reaching the trial stage, we can unambiguously conclude that judges do take into account the labor market conditions becoming more pro-worker as unemployment increases.

To implement this testing strategy we estimate the model defined by equations 5, 6 and 7, which characterizes the selection of cases for trial and the model 9 which characterizes the decision of the judge. The estimation of these models allows us to establish which one, if any, of the conditions (10) and (12) in Proposition 3 holds. If none of the two conditions holds, it will not be possible to draw any conclusion on the basis of the evidence. Alternatively, depending on which of the two

conditions hold, we will conclude that judges are biased by labor market conditions in a direction indicated, respectively, by equations (11) or (13).

The estimation of the model for the selection of cases into the trial stage presents an additional problem that has to be discussed. While the decision of the firm does not rise any particular difficulty, the decision of the worker to accept the firing or go to court is observable only if the firm has decided to fire the worker. This originates an additional identification problem from an econometric viewpoint, because, as we argued in Section 3.1, the unobservables in the firm equation, η^f, are positively correlated to the unobservables in the worker equation, η^w. As a consequence, the distribution of η^w in the sub-population of fired workers is not the same as the one in the full population (in fact, it is stochastically larger). This identification problem would be straightforwardly solved if at least one of the explanatory variables in the firm equation could be excluded from the worker's equation. Unfortunately, the theory we developed in Section 3 does not provide any justification for this exclusion restriction. Therefore, we can only address the problem by checking that the condition (10) or (12) hold *uniformly* over the range of *non negative* values of the correlation coefficient between η^f and η^w.

4 The empirical evidence

In this section we present our evidence looking first at the selection of cases for trial and later at the decision of judges.

4.1 The effect of labor market conditions on the selection process

Assuming that the joint distribution $\Phi(\eta^f, \eta^w)$ is normal, equations (5), (6) and (7) originate a Bivariate Probit model with different cut points for each observation. The cut points are the thresholds, in terms of the unobservables η^f and η^w, which determine the observed outcome of the selection process for each misconduct case.

In Table 4 we present maximum likelihood estimates of this Bivariate Probit model for different non-negative values of the correlation coefficient ρ between the unobservables η^f and η^w.[25] The table reports only the effect of the regional unemployment rate, which is our measure of local labor market conditions (see Section 2) and the main variable of interest in this study.[26]

The first column shows estimates of the parameter λ_2 which measures the effect of the unemployment rate on the "Keep threshold" M_K (see equation 3). According to the theoretical model we have no reason to expect this threshold to be affected by the regional unemployment

[25] Note that negative values of ρ are not considered, since they are evidently implausible. The estimation at the boundary of the parameter space ($\rho = 1$) is omitted because infeasible. The Ordered Probit specification used in Ichino, Polo and Rettore (2001) can be considered as a specification for this case. The results are qualitatively similar to the ones described here.

[26] The interested reader can find the other coefficients in the Appendix Table 7 for the case of $\rho = 0.6$. To comment on the size, sign and significance of each of these coefficients would be interesting in its own right, but it would go beyond the main goal of this paper and we abstain from it to save space.

rate, and indeed this is our finding. Independently of the value of ρ, these estimates are all very small and largely insignificant. We find instead some support for the hypothesis that the regional unemployment rate increases the "Trial threshold" M_T. The estimates of the parameter γ_2 (see equation 4), reported in the second column of Table 4, are all positive, larger in absolute size and significantly different from zero at the 10 percent level. This level of significance is low but sufficient to exclude with confidence, in a one-sided test, that the coefficient is negative. In other words, we can exclude that the threshold decreases when unemployment increases.

This combination of estimates allows us to conclude that the first two inequalities in condition 10 of Proposition 3 are satisfied with a weak inequality, while condition 12 is not supported by the evidence. Moreover, there is some evidence, although only marginally significant, that the inequality for the "Trial threshold" in condition 10 holds with a strict inequality.

Before completing our testing strategy with evidence on the third inequality of condition 10, we can draw interesting information from estimates of how the regional unemployment rate influences the probability of the outcomes of the selection process. In terms of Figure 2, if M_T moves to the right and M_K remains constant, the area corresponding to the outcome "fire and TRIAL" increases. The dimension of this effect in terms of probability of this outcome is reported in the third column of Table 4. We find that a 1 percentage point increase of U raises the probability of trial by 0.2 percentage points. Also this estimate is significant only at the 10 percent level, but it allows us to exclude with greater confidence that the probability of trial decreases with unemployment. This result is in line with the findings of Donohoue and Siegelman (1991), quoted in the Introduction, who suggest that incumbent workers are more likely to use the judicial system in worse labor market conditions if their positions are threatened.

Changes in the probability of trial may have very different consequences in terms of average gravity of the misconduct cases that reach the trial stage depending on which threshold moves and in which direction. Using again Figure 2, it is intuitive, as stated in Proposition 2, that cases in the south-west region of the square (i.e. near the origin) correspond to less serious misconducts perceived by the judge. This because both parties are receiving signals that the misconduct is not too serious and these signals are unbiased for the true misconduct as perceived by the judge. Viceversa, cases in the north-east region of the square are more likely to correspond to serious cases in the perception of the judge. It is therefore similarly intuitive that if the firm's decision threshold M_K does not move while the worker's decision threshold M_T increases, the average gravity of the cases reaching the trial stage increases or remains constant. Under the assumptions used in Appendix 6.1 for the proof of Proposition 2, we can compute the effect of the unemployment rate on the expected value of the misconduct gravity at trial, as a function of the decision thresholds of the two parties. Estimates of this effect are reported in the last column of Table 4 for the different values of ρ. Given their low statistical significance these estimates suggest that the average gravity of the misconduct episodes reaching the trial stage does not change much as a function of the regional unemployment rate.

The reader may wonder why we can reach this conclusion without taking explicitly into consideration a plausible preliminary 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 $\bar{M}^f$ and $\bar{M}^w$ 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^f and η^w are 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 argument. This is suggested by the evidence in Ichino and Maggi (2000) who show that the observed gravity of misconduct is significantly higher in regions characterized by higher unemployment. We claim that if this is true for the observable component of misconducts $\lambda'_M z$ and $\gamma'_M z$, there is no reason to suppose that the opposite should hold for the unobservable components η^f and η^w. 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 the misconduct episodes selected for trial where unemployment is higher are no less serious and, if anything, more serious.

Given this result, in the last step our testing strategy we should expect to find that the probability of a pro-firm decision at trial does not depend on regional unemployment (or, if anything, that it increases with U). As we will see in the next section, this is not the case.

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.[27] 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 same episodes may in principle be judged by 4 different courts (sometime 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 5 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.[28] Firing was overruled by 29 percent of the 148 courts that evaluated the

[27] 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 low unemployment regions.

[28] Note that there are 90 decisions at the *Pretura* level 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

case, but if we consider only the final courts the decision was favorable to the worker only in 17 percent of the 83 tried cases.

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.

Given this limitation of our data, we decided to present results concerning, for each case, the main *Pretura* decision and the final decision independently of the court taking it.[29] Although the final decision is likely to be the one that the parties have in mind during the selection process, the focus on *Pretura* decisions is motivated by the possibility to compare our results with national representative data on the decisions taken at the same court level for the universe of firing litigations.[30] The Italian Law establishes that Courts have to transmit to ISTAT, through the Minister of Justice, the data concerning any litigation reaching the trial stage or settled in front of the judge. Macis (2001) has re-organized the information provided by ISTAT in a dataset containing the number of litigations, the number of settlements and the number of pro-worker and pro-firm decisions by region and year.[31] These "macro" data can be usefully combined with our "micro" data to assess the robustness and to improve the efficiency of our estimates, following the procedure suggested by Imbens and Lancaster (1994) which we summarize in the Appendix 6.2. Interestingly, the average fraction of firm victories at the *Pretura* level in the ISTAT-Macis data set is 75 percent while in our personnel data set it is 69 percent. The similarity between these two figures suggest that our firm data may represent a relatively undistorted image of the National situation.[32]

The first row of Table 6 reports estimates of the marginal effect of unemployment on the probability of a firm victory at trial based on the coefficient θ_3 in the reduced form model of equation 9. This marginal effect is the third derivative listed in condition 10 of Proposition 3. In this row we use only the "micro" data corresponding to the misconduct episodes observed in

enough to induce the worker to accept the firing.

[29] We observe at least one *Pretura* decision for 84 of the 86 cases that reached the trial stage and if two *Pretura* decisions exist for a given case we disregard the one concerning the urgency procedure (see footnote 28). As already said, the final decisions are instead 83.

[30] We thank Mario Macis for giving us access to his dataset on judges decision at the *Pretura* level, that he constructed on the basis of information originally collected by the Italian central statistical agency (ISTAT). Unfortunately, for technical reasons explained in Macis (2001) data on decisions taken at other court levels are not available.

[31] The information is available for 19 regions (Piemonte and Valle d'Aosta are grouped together) and for 4 years: 1989, 1990, 1992 and 1993. Since the information on three regions is missing in these years, the dataset contains a total of 73 region-year observations. For further details, see Macis (2001).

[32] Note that in analogy with the definition of firm victory at trial used in our study (see footnote 4), we consider settlement at trials as losses for the employee, and we codify the ISTAT-Macis data accordingly. It is important to keep this difference in mind when comparing our results with the ones described in Macis (2001).

our bank, and the estimates are negative but small and statistically insignificant. Given the size of the sample and the extensive set of control variables (which include a dummy for working in the south, 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) this lack of significance is not surprising. The dummy for working in the south is especially responsible for the imprecision of the estimates because it is highly correlated with the regional unemployment rate, a well known aspect of the Italian "Mezzogiorno" problem. Yet this control is particularly necessary to ensure that our estimates capture the causal effect of local labor market characteristics and not other confounding environmental effects.

The ISTAT-Macis data set offers instead more robust evidence on the effect of unemployment on judges decisions in firing litigations, although only at the *Pretura* level. The second row of Table 6 reports the estimated coefficient of a regression of the fraction of firm victories at this court level by region and year on the regional unemployment rate and on a dummy for southern regions. A 1 percentage point increase of the unemployment rate increases the fraction of firm victories by 1.9 percentage point, and the estimate is statistically significant at the 5 percent level. If we could argue that the selection of firing litigations for trial at the national level were identical to the one described in Section 4.1 for our firm, we would be able to conclude just on the basis of this evidence that worse labor market conditions bias the decision of judges in favor of workers. This is because from the firm data we have learned that the gravity of misconducts at trial is equally serious in high and low unemployment regions, while from the ISTAT-Macis data we have learned that the fraction of firm victories is significantly smaller where unemployment is higher, even controlling for the environmental differences characterizing southern regions. This conclusion, however, would rest on the unverified assumption that the characterics of the selection of cases for trial takes place in the same way at the national level and in our firm.

Imbens and Lancaster (1994) suggest a different way to use the ISTAT-Macis "macro" data in combination with our "micro" data to shed light on the question under study. Leaving the technical details for the Appendix 6.2, Imbens and Lancaster show how the "macro" data can be used to increase the precision of the estimation based on "micro" data. The results are reported in the third row of Table 6. At the *Pretura* level, a 1 percent increase of the unemployment rate is estimated to reduce the probability of a firm victory by 2.5 percentage points and the effect is statistically different from zero at the 5 percent level. A very similar estimate is obtained also for final decisions (see the the same row in the second column of the table) although in this case the combination of "micro" and "macro" data for different court levels does not fully satisfy the conditions for the application of the Imbens and Lancaster (1994) methodology. In both cases, the estimates are obtained controlling for the same set of variables used in the "micro" data specification of the first row of the table. In particular note that the dummy controlling for the environmental characteristics of southern regions is included here as well.[33]

[33]The estimated coefficient of the control variables are reported in Table 8 for the Pretura case. As we did in the case of the estimates for the selection process, we abstain from commenting these coefficients in the interest of

To give a better idea of the size of this effect, in 1993 the regional unemployment rate was 5.8 percent in Milan and 19.7 percent in Naples. Our results suggest that, ceteris paribus, because of this difference the probability of a firm victory would be approximately 35 percentage points lower in Naples than in Milan for the same misconduct episodes. In that same year the observed fraction of firm-victories in the ISTAT-Macis dataset was 84.8 percent for *Lombardia* and 70.6 percent for *Campania*, which are the regions in which Milan and Naples are respectively located. The difference amounts to only 14 percentage points approximately. This result suggests that the overall effect of other regional differences reduces the gap between the probabilities of firm victory induced by the different labor market conditions in the north and in the south. For example, one of these differences could be the political orientation of judges.

To verify this possibility 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.[34] 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 analysis.[35] Nevertheless, this finding suggests that leftist judges appear to be more concentrated in northern regions and this is likely to be one of the factors that explains why the observed difference in the probability of firm victory between north and south is smaller than what would be implied by the unemployment differential alone keeping equal all other regional characteristics.

Finally, it is important to realize that the estimates obtained with the Imbens and Lancaster procedure are estimates of the parameter θ_3 in equation 9 *for the misconduct episodes observed in our firm* and these are the episodes for which we know how unemployment affects the selection of litigations for trial. This is not the case for the estimate of the second row which is based on "macro" data only. It is therefore legitimate to consider jointly the Imbens and Lancaster estimate of the effect of unemployment on the decision of judges and the estimates obtained in Section 4.1 of the effect of unemployment on the selection process. The combination of these results satisfies condition 10 of Proposition 3, because the first two derivatives are estimated to be non-negative, while the third derivative is estimated to be significantly negative. This means that even if the gravity of misconducts brought to trial is not lower in regions where unemployment is higher, firm victories at trial are significantly less frequent in these regions, suggesting that worse labor market conditions do bias judges in favor of workers.

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space. We just want to point out to that the apparently puzzling negative coefficient of the gravity of misconduct, is a good demonstration of how the non random selection of cases for trial may generate counterintuitive estimates if one does not take into account how the selection actually operates.

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

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

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 misconduct episodes brought to trial are no less serious than elsewhere, and if anything more serious. As a consequence, if the legal standard of judges were independent of unemployment, we should also observe the same number of firms' victories at trial in all regions. 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. This effect is not only statistically significant, but also large in size. A 1 percentage point increase of the unemployment rate decreases the probability of a firm victory by 2.5 percentage points. This result suggests, for example, that given the 14 percentage point difference between the regional unemployment rates of Milan and Naples in 1993, the probability of a firm victory would have been approximately 35 percentage points lower in the southern of these two cities for the same misconduct episode. Interestingly, the combined effect of other regional differences, like for example the political orientation of judges, dampens the consequences of the unemployment differential that would be observed if regions had the same characteristics.

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: 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.

6 Appendix

6.1 Signals received by the parties and misconduct gravity perceived by the judge

In this Appendix we derive the proof of Proposition 2 and we show how we evaluate the derivative with respect to U of the mean misconduct gravity for the cases brought to court (see the last column in Table 4).

We begin with the derivation of the conditional mean $E\{M \mid \bar{M}^f, \bar{M}^w\}$. As explained in Section 3, $\bar{M}^f$ ($\bar{M}^w$) is obtained as the optimal prediction (in the sense of minimizing the variance of the prediction error) of M conditional on I^f (I^w), the information available to the firm (the worker). The conditional mean value we are looking for, $E\{M \mid \bar{M}^f, \bar{M}^w\}$, is the optimal prediction of M conditional on the two predictions $\bar{M}^f$ and $\bar{M}^w$. Confining ourselves to linear combinations of the two predictions the optimal choice is:

$$E\{M \mid \bar{M}^f, \bar{M}^w\} = \xi \bar{M}^f + (1-\xi)\bar{M}^w, \tag{14}$$

with ξ reflecting the size of $var\{\epsilon^f\}$ relative to $var\{\epsilon^w\}$.[36] It is apparent from 14 that the derivative of $E\{M \mid \bar{M}^f, \bar{M}^w\}$ with respect to both $\bar{M}^f$ and $\bar{M}^w$ is positive.

Considering now the mean gravity of the cases brought to court as perceived by the EO, note that it is equal to the mean of M conditional on the outcome T of the selection process and on the information on the misconduct gravity available to the EO itself, which we denote as $\hat{M}^f = \lambda_M' z$ and $\hat{M}^w = \gamma_M' z$ (see equations 1 and 2).

Hence, we need to evaluate $E\{M \mid \hat{M}^w, \hat{M}^f, T\}$. Simple calculations allow to establish the following equality

$$E\{M \mid \hat{M}^w, \hat{M}^f, T\} = E\{E\{M \mid \bar{M}^f, \bar{M}^w\} \mid \hat{M}^w, \hat{M}^f, T\}. \tag{15}$$

Substituting 14 in 15 and using the identity $\bar{M}^j \equiv \hat{M}^j + \eta^j$, $j = w, f$ we get:

$$\begin{aligned} E\{M \mid \hat{M}^w, \hat{M}^f, T\} &= \xi E\{\bar{M}^f \mid \hat{M}^w, \hat{M}^f, T\} + (1-\xi)E\{\bar{M}^w \mid \hat{M}^w, \hat{M}^f, T\} \\ &= \xi \hat{M}^f + (1-\xi)\hat{M}^w + \xi E\{\eta^f \mid \eta^f \geq M_K - \hat{M}^f, \eta^w \leq M_T - \hat{M}^w\} \\ &+ (1-\xi)E\{\eta^w \mid \eta^f \geq M_K - \hat{M}^f, \eta^w \leq M_T - \hat{M}^w\}. \end{aligned} \tag{16}$$

Since we are searching for the derivative with respect to U, in the following we disregard the quantity $\xi\hat{M}^f + (1-\xi)\hat{M}^w$, which is invariant with respect to U, and focus on the remaining terms. We also assume that (η^f, η^w) are jointly normal. Under this assumption Lee (1979) provides the formulae to explicitly evaluate the mean of η^w and η^f under double truncation which generalize the well known inverse Mill's ratio.

[36] Equation 14 is the optimal predictor altogether, not only within the class of linear combinations, if the distribution of ϵ^f, ϵ^w is jointly normal.

It remains to add a word on the parameter ξ. As we said it reflects the relative value of $var\{\epsilon^f\}$ with respect to $var\{\epsilon^w\}$. Since the model we estimate does not identify these parameters we proceed by assuming that the two variances are of the same order of magnitude which is the same as assuming that the firm and the worker have the same amount of ignorance about M. Under this assumption ξ turns out equal to .5.

6.2 The Imbens and Lancaster (1994) estimation method

In this Appendix we summarize the way in which Imbens and Lancaster (1994) combine micro and macro data to estimate a microeconometric model. Let's rewrite equation 9 by stacking in the vector m the explanatory variables varying at the individual level, like the characteristics of the worker and of his misconduct, and in the vector s the explanatory variable varying only across geographical areas and over time, like the time and geographical dummies and the regional unemployment rate:

$$Pr(C \mid T, m, s) = L(\Theta_0' m + \Theta_1' s). \tag{17}$$

The ISTAT-Macis data convey information on the fraction of firm victories at trial in a specific region-year, which we denote with $Pr(C \mid T, s)$, $s = 1, S$, where S is the number of region-years. These "macro" data are informative on the parameters of equation (17) since they allow us to specify the following restrictions:

$$E\{L(\Theta_0' m + \Theta_1' s \mid s\} = Pr(C \mid T, s), \qquad s = 1, S. \tag{18}$$

Imbens and Lancaster (1994) propose to estimate the parameters in the regression model (17) subject to the S restrictions (18). The resulting estimator belongs to the GMM class. The authors provide an analytical discussion of the reason why this estimator might be much more efficient than the one based on micro data only.

In principle, in our case study S should be equal to 76 (19 regions and 4 years). In practice, it turns out much smaller. On the one hand, the "macro data" are missing for three region-years. On the other hand, and more importantly, the restriction (18) is informative only in those region-years in which we observe at least one case in the "micro" data set. Since there are only 18 region-years for which at least one misconduct episode is available in the "micro" data set, we can impose 18 restrictions.

Lastly, there is a potential problem in pooling the "micro" and the "macro" data set. Since in principle there is no reason to believe that the cases brought to court in our firm are representative of the full population of cases brought to a court, the restrictions (18) might not hold, in which case imposing them results in an inconsistent estimate of the parameters. To test for the poolability of the two data set we include in the regression a dummy to allow for systematic differences between the cases in our firm and the cases in the full population with respect to the probability to observe an outcome C. An estimate of the coefficient on this dummy significantly different from zero would provide evidence against the poolability of the "micro" and "macro" data. According to the results reported in Table 8, the null hypothesis that the coefficient of the dummy is zero is not rejected by the data.

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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: Descriptive statistics for the workers involved in misconduct episodes

Variable	Obs.	Mean	S. Dev.	Min.	Max
Age	1862	38.3	9.0	17.1	61.6
Manager	1862	0.13	0.33	0	1
White collar worker	1862	0.74	0.41	0	1
Blue collar worker	1862	0.13	0.32	0	1
Working in the south	1862	0.29	0.46	0	1
Regional unemployment rate	1862	10.9	5.5	3.4	26.8

Note: The source of the unemployment data is ISTAT (Italian central statistical agency)

Table 3: Distribution of misconduct episodes across levels of gravity, by outcome of the selection process and regional unemployment rate

	Low regional unemployment				*High regional unemployment*			
Level	Keep	Trial	Accept	Total	Keep	Trial	Accept	Total
1	48	0	5	53	39	0	1	40
	(91)	(0)	(9)	(100)	(98)	(0)	(2)	(100)
2	222	0	16	238	261	0	11	272
	(93)	(0)	(7)	(100)	(96)	(0)	(4)	(100)
3	228	2	17	247	210	0	13	223
	(92)	(1)	(7)	(100)	(94)	(0)	(6)	(100)
4	98	3	9	110	87	5	9	101
	(89)	(3)	(8)	(100)	(86)	(5)	(9)	(100)
5	104	2	23	129	80	17	28	125
	(81)	(2)	(18)	(100)	(64)	(14)	(22)	(100)
6	20	2	34	56	20	10	32	62
	(36)	(4)	(61)	(100)	(32)	(16)	(52)	(100)
7	11	8	20	39	22	16	28	66
	(28)	(21)	(51)	(100)	(33)	(24)	(42)	(100)
8	1	7	41	49	2	14	36	52
	(2)	(14)	(84)	(100)	(4)	(27)	(70)	(100)
Total	732	24	165	921	721	62	158	941
	(79)	(3)	(18)	(100)	(77)	(7)	(16)	(100)

Note: The columns referring to *Low (high) regional unemployment* report statistics on the cases of misconduct occurring in regions and years in which the regional unemployment rate was below (equal or above) the national median. The table reports percent frequencies by row in parentheses.

Table 4: The effect of the unemployment rate on the selection of cases for trial

	Effect on the Keep threshold M_K^f	Effect on the Trial threshold M_T^w	Effect on the probability of Trial	Effect on the gravity at trial
$\rho = 0$	-0.007	0.055	0.002	0.019
	(-0.43)	(1.83)	(1.80)	(1.42)
$\rho = 0.2$	-0.007	0.054	0.002	0.019
	(-0.45)	(1.81)	(1.80)	(1.33)
$\rho = 0.4$	-0.008	0.051	0.002	0.019
	(-0.48)	(1.77)	(1.81)	(1.22)
$\rho = 0.6$	-0.008	0.047	0.002	0.017
	(-0.51)	(1.72)	(1.83)	(1.07)
$\rho = 0.8$	-0.009	0.040	0.002	0.014
	(-0.54)	(1.62)	(1.87)	(0.86)

Note: Maximum likelihood estimates of the effect of the unemployment rate obtained with the Bivariate Probit model described in Section 3.4. The joint dependent variable takes value $\{1, 1\}$ if the firm fires the worker and the worker goes to trial. The restricted parameter ρ is the correlation coefficient between the two unobservable latent indicators of the Bivariate Probit. Each estimated model also includes the following control variables: a dummy for working in the south, 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. A full set of results for the specification obtained with $\rho = 0.6$ is presented in Table 7 in the Appendix. The sample size is 1862. The table reports t-statistics in parentheses.

Table 5: 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 83) decisions at the first level (*Pretura*) because at this level the standard decision is sometimes preceded by a preliminary urgency procedure. The table reports percent frequencies by row in parentheses.

Table 6: The effect of the unemployment rate on the probability of a firm victory at trial

Specification	*Pretura* decisions	Final decisions
Only micro data	-0.003	-0.005
	(-0.14)	(-0.36)
Only macro data	-0.019	
	(-2.38)	
Micro and macro data	-0.025	-0.019
	(-2.26)	(-2.56)

Note: The table reports the marginal effect of the unemployment rate on the probability of a firm victory at trial. The effect is estimated with:

- a probit model when only micro data are used (the dependent variable is 1 in case of firm victory);
- with a linear regression when only macro data are used (the dependent variable is the fraction of firm victories in a given region-year cell;
- with the Imbens and Lancaster (1994) method when micro and macro data are jointly used (see Appendix 6.2 for the characterization of the dependent variable in this case).

Each estimated model also includes the following control variables: a dummy for working in the south, 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. Table 8 in the Appendix reports the coefficients on these variables for the specification using micro and macro data at the *Pretura* level. In the first column results are based on 84 decisions at the *Pretura* level. In case of two *Pretura* decisions for a single case we disregarded the urgency procedure decision (see the note to Table 5). In the second column results are based on 83 final decisions. The extra case at the *Pretura* level is one of the three cases that are still waiting for a final decision, but for which the *Pretura* decision has been already taken. The table reports t-statistics in parentheses.

Table 7: Appendix: Determinants of the selection of cases for trial if $\rho = 0.6$

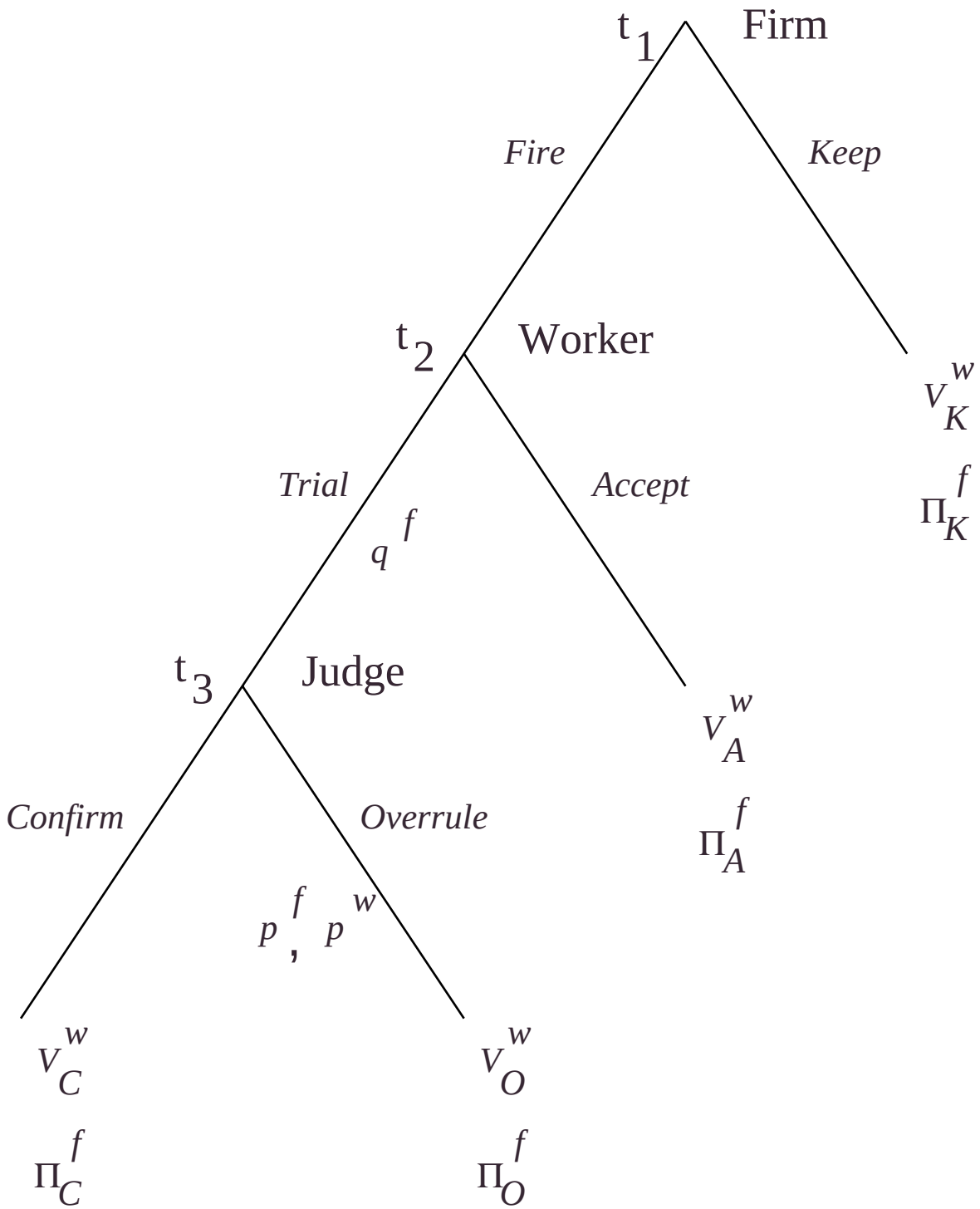
	Effects on Keep threshold M_K	Effects on Trial threshold M_T
Unemployment rate	0.008	0.047
	(0.51)	(1.72)
Working in the south	0.146	0.030
	(0.75)	(0.10)
Age	-0.012	0.00
	(-2.53)	(0.07)
Manager	0.189	0.503
	(1.024)	(1.53)
White collar	0.186	0.431
	(0.126)	(1.59)
Period 1983-1986	-0.171	-0.107
	(-0.132)	(-0.50)
Period 1987-1995	-0.186	-0.478
	(-1.40)	(-2.03)
	Effects on the firm's signal $\bar{M}^f$	Effects on the worker's signal $\bar{M}^w$
Gravity of misconduct	0.461	0.003
	(18.11)	(0.052)
Repetition	0.0427	0.049
	(4.71)	(3.08)
External violation	0.140	0.342
	(0.83)	(1.26)
Internal violation	-0.465)	-0.416
	(-2.66)	(-0.14)
Inappropriate behavior	-0.771	-0.771
	(-1.66)	(-1.66)
Intercept	3.239	-0.658
	(11.32)	(-1.06)

Note: The table shows the estimated coefficients not reported in Table 4 for the Bivariate Probit model described in Section 3.4. The joint dependent variable takes value $\{1, 1\}$ if the firm keeps the worker and the worker is fired and goes to trial. The parameter ρ is the correlation coefficient between the two unobservable latent indicators of the Bivariate Probit and is restricted to be equal to 0.6 in the reported specification The sample size is 1862.

Table 8: Appendix: Determinants of a pro-firm decision at the Pretura level

	Coefficient	standard error	t-statistic
Intercept	2.06	1.00	2.04
Unemployment rate	-0.08	0.03	-2.26
Working in the south	0.59	0.39	1.50
Period 1983-1986	-0.27	0.47	-0.57
Period 1987-1995	1.14	0.51	2.24
Age	-0.01	0.013	-0.67
Manager	-0.11	0.37	-0.30
White collar worker	0.26	0.29	0.91
Gravity of misconduct	-0.21	0.11	-1.97
Repeated misconduct	0.58	0.22	2.61
Internal violation	0.05	0.25	0.18
Dummy for macro data	-0.20	0.25	-0.80

Note: The table shows the estimated coefficients not reported in Table 6 for the specification using micro and macro data at the *Pretura level*. The estimation method follows the Imbens and Lancaster (1994) procedure described in Appendix 6.2. Results are based on 84 decisions at the *Pretura* level. In case of two *Pretura* decisions for a single case we disregarded the urgency procedure decision (see the note to Table 5). Because of multicollinearity, in contrast with the model for the selection process (see Table 7, here we can only include the "Internal violation" dummy to control for the type of misconduct. For the interpretation of the coefficient on the "Dummy for macro data" see the Appendix 6.2.



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

$$\Pi_A^f > \Pi_C^f > \Pi_K^f > \Pi_O^f$$

FIG. 1: The game

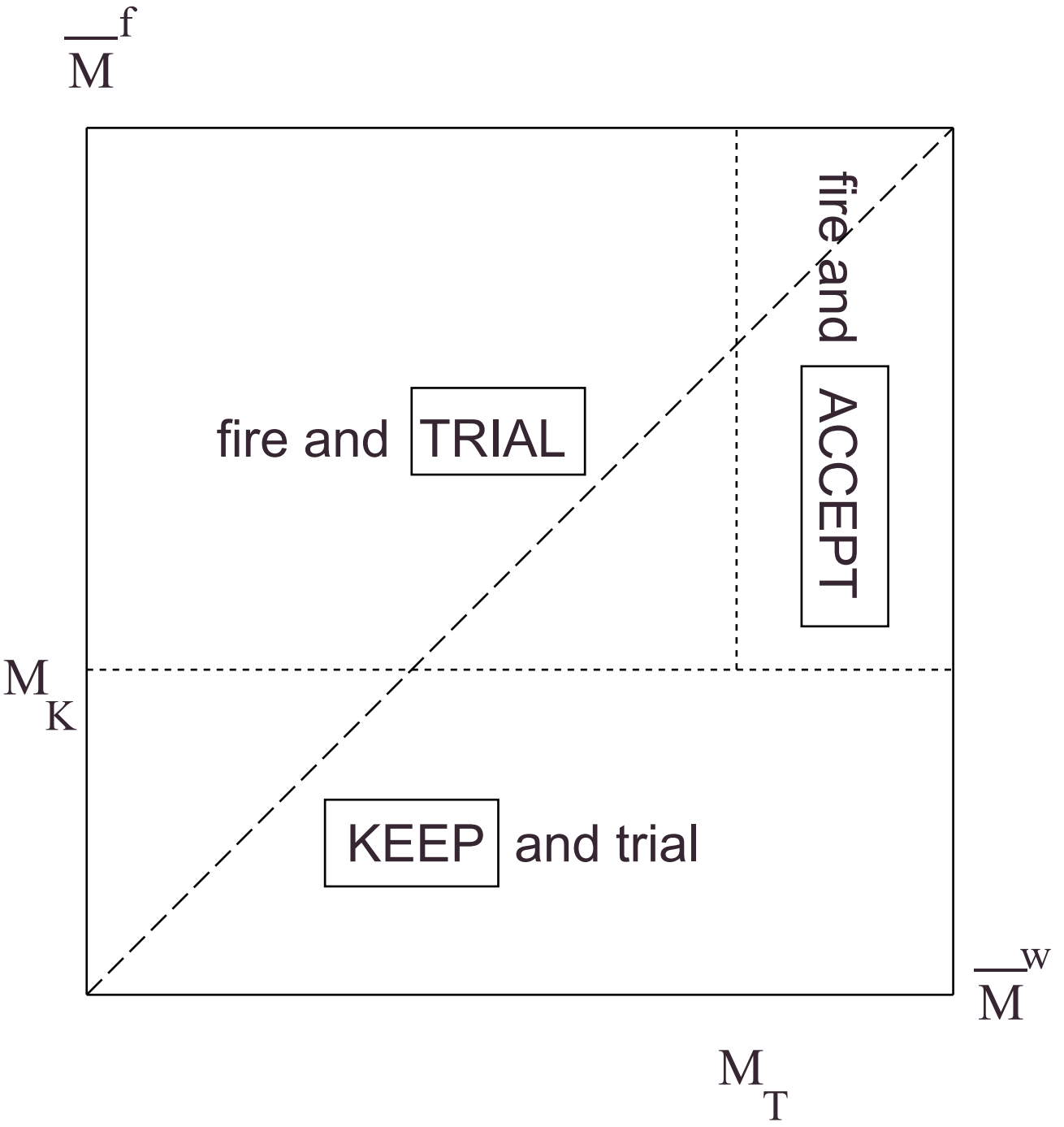


FIG. 2: The outcomes

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