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COURTS'INEFFICIENCY AND IRREGULAR WORKERS:
IDENTIFYING THE IMPACT OF REAL EPL
Giuseppina Gianfreda   Giovanna Vallanti

Luiss Lab of European Economics
Department of Economics and Business
LUISS Guido Carli
Viale Romania 32, 00197, Rome -- Italy
http://dptea.luiss.edu/research-centers/luiss-lab-european-economics

Courts' inefficiency and irregular workers: identifying the impact of real EPL

Giuseppina Gianfreda[*]
Università della Tuscia and LLEE

Giovanna Vallanti [†]
Università Luiss "Guido Carli" and LLEE

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Abstract

The employment protection legislation is not enforced uniformly both across and within countries. Among the others, the enforcement of regulation depends on the courts' actions and on the capacity of firms to escape legislation. We exploit the variation in courts' inefficiency across Italian judicial districts in order to provide evidence on the impact of EPL on job reallocation and firms' productivity. We show that the inefficiency of the judicial system has a causal effect on job flows by reducing both job creation and job destruction with a detrimental impact on firms' labour productivity. Moreover, we find that the negative impact of firing costs on job turnover and productivity is weaker in regions with a large share of irregular workers, since firms can partially adjust their labour force through the informal channel.

JEL CODES: D24, J63; K31; K41

KEY WORDS: EPL, courts, irregular workers, job flows, labour productivity

[*]Giuseppina Gianfreda, Università della Tuscia, DISUCOM, via Santa Maria in Gradi. Phone: +390761357887. Email: ggianfreda@unitus.it.

[†]Giovanna Vallanti. Università Luiss "Guido Carli", Department of Economics and Finance, viale Romania 32, Rome 00197, Italy. Phone: +390685225910. Email: gvallanti@luiss.it.

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1 Introduction

Recent research has highlighted the impact of employment protection legislation (EPL) on firms' productivity through its influence on job flows. Labour reallocation is a crucial determinant of the capacity of the firm to quickly adjust to exogenous shocks; high firing costs may hinder job flows and, by this way, affect productivity. In a world where agents (firms and workers) are heterogeneous and the matching process between vacancies and workers is costly, when a shock hits the economy the desired allocation of jobs among firms and sectors changes, leading to job destruction on the one hand and to the creation of new vacancies on the other. Because of the heterogeneity of jobs and workers and other labour market frictions, new vacancies and unemployed workers do not match instantaneously, implying spells of unemployment and vacant positions in the economy (Pissarides, 2000).

In this theoretical framework, labour adjustment costs play a crucial role in explaining the dynamics of firms' hiring/firing decisions and labour productivity. In particular, a higher degree of workers' protection unambiguously reduces both job creation and job destruction (Blanchard and Portugal, 2001; Messina and Vallanti, 2007). From a theoretical point of view, the effect of higher firing costs on productivity has a less clear cut. In a standard search and matching model, the presence of dismissal costs will reduce the productivity threshold at which workers and firms decide to terminate their relationship, and this causes a decrease in firms' average productivity. However, given that the worker-vacancy match implies the presence of quasi-rents, which are typically allocated between workers and firms through a Nash bargaining mechanism, an increase in firing costs reduce the firms' outside options.[1] This induces a rise in the reservation productivity (below which firms do not hire) and potentially increases firms' average productiv-

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[1] When a firm is bargaining the wage with a continuing employee, the threat point in the bargaining process is the value of an unfilled vacancy minus the firing cost that the firm must pay if the negotiation is not successful.

ity.[2]

Most empirical studies on the impact of job protection on job realloca-
tion and productivity are based on aggregate EPL indexes constructed by
the OECD,[3] which measure the strictness of the legislation on workers' dis-
missal for various countries (Venn, 2009).[4] According to the OECD index, in
2008 Italy ranked broadly mid-field in the OECD comparison (25th out of 40
countries) with the EPL indicators being 1.89 against an OECD average of
1.94. There is, however, a large consensus that Italian labour market is one
of the most regulated market among the European countries.[5] This apparent
disconnection between the OECD indicator and the perceived rigidity of the
Italian labour market is attributed to the fact that *de jure* indicators, such as
those constructed by the OECD, fail to capture the *de facto* impact of insti-
tutional factors, which may nonetheless play a significant role on the extent
of job protection. For example, for regular contracts, employment protection
regulations set rules under which an employee can be dismissed, and the em-
ployer can be sanctioned in case of non compliance. If, for instance, courts
tend to decide in favour of workers in litigations over dismissal cases, actual
firing costs in a specific country/sector may well be higher than those implied

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[2]Moreover, stricter employment protection may induce capital accumulation and favour
specific investment and learning by doing (Belot et al. 2007).

[3]The OECD index for employment protection legislation is one of most widely used in
the empirical studies on the economic effects of labour market regulation. Apart from the
OECD index, other indicators of the stringency of labour regulation have been developed.
Such indicators, which generally cover a larger set of countries than the OECD index
or a longer period of time, have been constructed by either by the World Bank or by
individual researchers (see for example Blanchard and Wolfers, 2000; Belot and van Ours,
2004; Botero et al 2004).

[4]Among the others, Salvanes (1997), Messina and Vallanti (2007) and Cingano et al.
(2010) use the OECD EPL index to assess the impact of firing costs on job reallocation and
its components. Scarpetta (2002), Bassaninini et al. (2009) and Cingano (2010) employ
the OECD index to study the causal relationship between firing costs and productivity.

[5]Based on survey data, the World Economic Forum's recent competitiveness report
(2012) ranks Italy 42th among 144 countries and near the bottom on most labor-market
related indicators.

by the standard EPL index. Courts' decisions play then an important role in determining the degree of strictness of EPL legislation, which should be taken into account when analysing the performance of the labour market.

The above considerations suggest that there may be additional dimensions of the *de facto* EPL strictness due to the actual enforcement of employment protection, which may vary both cross-country and within-country considerably. The influence of the judiciary over labour market goes far beyond court decisions. Uncertainty on the outcome of litigations can in itself be costly for firms. Indeed, the more the rules and regulations leave room for interpretation, the bigger the uncertainty on the outcome of the trial and the bigger the role of judges in determining the enforcement of the rules. Moreover, the judicial procedure may be very long adding further uncertainty on the side of both the employee and the employer concerning the outcome of the suit. The perceived cost of enforcing dismissal rules can then be very different even in countries with similar employment protection legislation, as it depends on the efficiency of their judiciary. This aspect depends, in turn, on the allocation of resources and the geographical distribution of labour disputes brought to courts.

The degree of strictness of *de facto* EPL regulations is also related to the extent to which is difficult for firms to escape from them. If, for example, firms' choices include also to hire irregular workers, they can mitigate the perceived strictness of EPL through this channel. The relationship between labour regulations and the extent of irregular work has been documented in several studies, especially for developing economies.[6] These studies show that, on the one hand, labour regulation and enforcement induce an expansion of the informal sector and underground economy (Almeida and Carneiro, 2012), while, on the other, in presence of a developed informal labour market, the impact of regulation on firms' (formal) employment decisions is less strong, since there are fewer labour adjustments occurring on the regular

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[6]Among the others, see recent contribustions from Albrech et al. (2009), Kugler and Kugler (2009), Hoek (2007), Bosch et al. (2007), Heckman and Page (2004).

labour market (Besley and Burgess, 2004; Albrecht et al., 2009). The issue of the impact of regulation on labour market in presence of an informal labour market has, however, received less attention for developed countries. Nevertheless, the informal sector represents an important part of the economy even in many industrialized economies; thus it cannot be neglected when assessing the impact of labour regulation on firms performance.

This paper focuses on the interplay between courts' efficiency and irregular work in determining the degree of strictness of *de facto* EPL regulations and their effects on job flows and productivity, two issues that are often neglected in cross-country studies of job flows. The advantage of our approach vis-a-vis the cross-country literature is that we can identify the effect of actual EPL by exploiting the territorial heterogeneity of courts' efficiency as well as that of the share of irregular workers.

More specifically, this paper contributes to the existing empirical literature on the effect of regulation on job reallocation and productivity along several dimensions.

First, by working on data referred to a single country, i.e. Italy, we can construct comparable job flows and productivity indicators using a firm-level harmonized database.[7] Morover, by focusing on the same country, we reduce the problem related to the difficulties of isolating the effects of EPL from those of other institutional features of the labour market, such as, for example, wage compression (Bertola and Rogerson, 1997).[8]

Second, we focus on a source of uncertainty which is not (entirely) captured by the traditional EPL indicators, i.e. the length of labour trials. According to Doing Business 2012 ranking, Italy ranks 158th in the Enforcing Contract statistics with 1210 days from filing a case to the enforcement

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[7]A fundamental problem of the existing cross-country analysis of job flows is the lack of harmoinized data at firm level in terms of the source of the data (administrative versus survey), unit of observation (firms versus establishments), sectoral coverage and period of observation (expansion versus recessions).

[8]Boeri and Jimeno (2005) stress the importance of using data referred to the same country and exploiting any time-series available for regulations.

of judgement. More disaggregated data for Italy show that the length of trial is not homogenous throughout the country.[9] We exploit the heterogeneity in court inefficiency across Italian provinces and estimate the impact of the duration of labour trials (as a dimension of EPL) on job flows (job creation and job destruction) and, ultimately, on firms' productivity and capital deepening.

Third, we also exploit two important features of the Italian productive structure, namely the large presence of small- and very small-sized firms as well as of the irregular economy to better identify the impact of courts' inefficiency on job flows and productivity. Both aspects have an important territorial dimension, with the larger shares of both small firms and irregular workers concentrated in the Southern regions. The interplay between firm size and employment protection legislation has been widely considered in the empirical literature, since in many countries the EPL provisions are less stringent for firms below certain size thresholds.[10] A less explored issue is the impact of labour regulation on formal labour market in presence of a well-developed informal sector.[11] We take a step towards this direction and exploit the regional heterogeneity in the share of illegal workers (as a proxy for informal labour market) within Italy, to better identify the impact of firing costs on job flows and productivity. To our knowledge, so far this is the first attempt to empirically quantify the impact of employment regulation

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[9]For example, between 2004 and 2008 the average turnover indicator of labour trials – calculated as the ratio (closed cases-newly filed cases)/newly filed cases - was 0.03 for Turin (in the North of Italy) and 0.32 for Reggio Calabria (in the South of Italy).

[10]For example in Italy, employment protection legislation is less strict for firms employing less than 15 workers. There are a number of studies for Italy that explit this size threshold in order to identify the effects of EPL on jobs and workers flows. See among the others Kugler and Pica (2008) and Boeri and Jimeno (2005).

[11]By informal sector we mean those activities (production and employment) which are deliberately concealed from the authorities in order to escape the payment of social security contributions or to avoid having to meet legal standards (minimum wages, number of hours worked, safety and health standards OECD (2002)). In this paper the terms 'informal' and 'irregular', will be considered as synonyms.

on a labour market with irregular jobs in an industrialized economy.

Our results suggest that courts' inefficiencies significantly affect employment adjustment costs by reducing the average job reallocation in the Italian judicial districts. At the firm level, we find a negative effect of the length of process on firms' productivity and on the capital to labour ratio. The estimated effects are not homeogenous across regions. We find that in regions with a large presence of the irregular labour market, the impact of regulation is significantly lower on both job reallocation and productivity. In our estimates, we control for the potential endogeneity of our indicator of judicial inefficiency in labour courts by instrumenting it with the average number of days of duration for civil cases, the latter being not affected by the local labour market dynamics. Moreover we control for unobserved heterogeneity among judicial districts via fixed effects in our panel. Therefore, our results are not driven by cross-sectional differences among provinces, such as cultural and social differences that may impact both labour market adjustments and the efficiency of courts.

The rest of the paper is organized as follows. The next Section presents the main characteristics of the data. Section 3 sets out the empirical methodology. The main results of the article are presented in Section 4 and Section 5 concludes.

2 Data sources and descriptive statistics

2.1 Court's inefficiency

The Italian Judicial System for civil disputes is organized into four courts: the Justice of Peace (Giudice di Pace), which presides over minor cases; the Civil Courts (Tribunale), which are the courts of first instance (and also serve as appellate courts for the decisions of the Justice of Peace), the Courts of Appeal and the Italian Supreme Court (Corte di Cassazione). The Civil

Courts have a seat in the main towns of each province[12] in areas called "circondario" (167 in the Italian territory). The Civil Courts judgements can be appealed before the Courts of Appeal, whose territory of competence is the district; there are 26 districts in Italy, each grouping several Courts areas (circondari). From an administrative point of view, the districts are located in the Provinces, although each district serves more than a province area.

Labour disputes are sued before the Labour Tribunal, which is a specialized division of the Civil Court, and can be appealed before the Court of Appeal. Although the labor trial takes place within the civil trial, there are some differences between the two procedures: the labor trial is faster and the judge has more inquiring powers as compared to the civil judge.

The first instance and the appeal take place within the same district both for civil and labour trials: a case which issued in the first instance before a given Court will be heard before the Court of Appeal of the district to which the originating Court belongs. The last instance takes place before the Corte di Cassazione, which is only based in Rome. Considering the first instance and the appeal stages only, information on the length of trials is availabl at the district level.

The Italian Ministry of Justice publishes annual data on both labour and civil trials at the district level covering a period from 2006 to 2009.[13] As far as labour trials are concerned, data are available on the flows of suits initiated during the year ("newly filed"), the flows which are closed every year ("closed") and the stock of pending suits every year ("pending") in first instance (FI) and in the appeal stage for each of the 26 Italian judiciary districts. Following a formula used by the Ministry of Justice, the average number of days of trial can then be calculated as the ratio between the stock of cases (pending cases at the beginning plus pending cases at the end of the

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[12]In Italy, a province (provincia) is an administrative territorial unit at an intermediate level between a municipality (comune) and a region (regione)..

[13]Jappelli et al. (2005) use similar data to estimate the effetcs of judicial inefficiency on credit markets.

year) and the incoming plus outgoing flows (newly files plus closed) . This formula allows us to estimate the days of trial within each stage of judgement. In order to take account of the overall days of trial for the first instance and the appea stagesl using the same criterion one should sum all the pending cases at the beginning and at the end of the year in the two stages and divide it by the sum of the ingoing and outgoing flows in the two stages ($IndexM$). However, this index has a drawback as it does not take into account of the sequentiality of the two trials, i.e. the fact that a suit which is closed before the courts of the first instance case can enter or not the appeal phase.

In order to account for the sequentially of the two trials we constructed a second index ($IndexA$) as a sum of the average days of trial for the first instance and for the appeal (calculated using the Ministry formula) where the appeal days are weighted by the number of ingoing suits at the appeal stage relatively to the number of outgoing suits at the first stage.

$$IndexA = DLT_{dt}^{FI} + DLT_{dt}^{A} \times S_{dt} \tag{1}$$

where DLT are the days of labour trials in the first instance (FI) and in the appeal (A) in district d at time t and S is the ratio of filed suits before the Appeal Courts on the suits closed at first instance in district d at time t. S, which ranges from 0 to 1, takes into account of the hypothetical nature of the appeal trial as not all the suits which are decided upon by the Court of first instance reach the appellate courts.[14]

Table 1 reports the two indicators of judicial efficiency in relation to labour trials for the 26 jurisdictional districts.

TABLE 1 AROUND HERE

The average days of trial estimated using $IndexA$ and $IndexM$ are shown in column 2 and 5 respectively, while in column 1 and column 6 the districts are ranked according to their efficiency, from the more efficient (lower trials length) to the less, using $indexA$ and $IndexM$ respectively.[15] Notice that the

[14]S can be interpreted as a proxy for the probability that the first instance judgment is appealed.

[15]It must be noticed that $indexA$ and $indexM$ do not take into account the period

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ranking of districts according to courts efficiency does not change significantly if measured by Index A and M.

Finally, in Table 2 we report the length of civil trials which are not related to labour disputes for the three courts: "Giudice di Pace", "Tribunale Ordinario", "Corte d'Appello" in the 26 districts.

TABLE 2 AROUND HERE

2.2 Job flows statistics

The conventions of Davis et al. (1996) are followed in defining job flows statistics. Denote the level of employment at firm f in period t with n_{ft} and let Δn_{ft} be the change in employment between period t and $t-1$. Let S^+ be the set of firms in sector S with $\Delta n_{ft} > 0$ and S^- be the set of firms in sector S with $\Delta n_{ft} < 0$. We calculate job creation by summing employment changes in S^+. Correspondingly, job destruction is calculated by summing all the (absolute) changes in S^-. Rates of job creation and job destruction are obtained by dividing by the size of sector. Firm size at time t is calculated as the average employment between period t and $t-1$, i.e. $x_{ft} = 0.5(n_{ft} + n_{ft-1})$. Accordingly, the sector size is defined as

$$X_{st} = \sum_{f \in S} x_{ft}$$

Job creation and job destruction can equivalently be expressed as the size-weighted average over firms' growth rates as follows:

$$JC_{st} = \sum_{f \in S_t^+} g_{ft} \frac{x_{ft}}{X_{st}}$$

$$JD_{st} = \sum_{f \in S_t^-} |g_{ft}| \frac{x_{ft}}{X_{st}}$$

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between the first suit and the appeal. However, the time which elapses between the two stages also depends on the decision of the party who appeals, which is not related to the courts' efficiency.

where $g_{ft} = \frac{\Delta n_{ft}}{x_{ft}}$ is the growth rate of employment in firm f and period t.[16]

The sum of the job creation and job destruction rates is the job reallocation rate (JR). It gives the total number of employment positions reallocated in the economy in a given period of time.

2.3 The data

To study the relationship between judicial efficiency and labour market dynamics we combine the data concerning labour disputes with firm level data from Aida produced by Bureau van Dijk (BvD). BvD collects balance sheet data from more than 500000 Italian firms by the national Chamber of Commerce. The dataset includes a wide range of financial and descriptive information (industry and activity codes, incorporation year, number of employees, etc.) as well as detailed information on number of workers, the value added and fixed assets. Data are available at firm level.

The Aida dataset has a drawback, as it does not allow to distinguish between newly created firms and firms that simply enter the sample at a given period t but were already operating in the period before; similarly, it is not possible to identify firms' closures from firms that exit the sample for other reasons. Therefore, we have restricted the analysis to continuing firms, e.g. firms that are in the sample for at least two consecutive periods. Although it is quite standard in the literature, it introduces a downward bias in the estimation of job flows. Given this limitation, we restricted our dataset to around one thousand firms from all industries operating in both the manufacturing and non manufacturing sectors. Observations are annual

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[16]The growth measure defined above is monotonically correlated with the conventional measure defined as the change in employment divided by the lagged employment, and the two measures are approximately the same for small growth rates. Moreover, unlike the conventional measure, which ranges from —1 and $+\infty$, this measure of growth rate is symmetric around zero, being bounded in the interval [-2,2], allowing employment expansions and contractions to be treated symmetrically

and cover the period from 2006 to 2009.

We calculate job flow rates (job creation, job destruction and job reallocation) at province-industry level using the number of employees at the end of the budget year. Job flows statistics are defined for narrow cells, obtained as the crossing of 14 productive sectors[17], 104 provinces[18] and 4 years (between 2006 and 2009). Labour productivity and capital intensity are calculated as value added and fixed assets per worker.

Finally, as the impact of labour market regulation on job reallocation may depend on the dimension of informal market where firms operate, we measure the informal economy at regional level using data on the share of irregular employment on total employment made available by the Italian Institute of Statistics (Istat).

Table 3 reports summary statistics of JC, JD and JR, average firm size and the share of irregular workers in each jurisdictional districts.

TABLE 3 AROUND HERE

A major feature of the Italian industrial structure is that firm size is quite small; the average number of workers per firm is around 50 with 56% firms having 15 workers or less. The threshold of 15 workers is particularly relevant in assessing the effect of EPL enforceability, since only for firms

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[17]The sectors are: (1) Agriculture, forestry and fishing; Mining and quarrying; (2) Food, beverages and tobacco;(3) Textiles; (4) Wood products; Paper products, publishing and printing; (5) Refined petroleum, nuclear fuel and chemical products; Rubber and plastic products; Other non-metallic products; Basic metals and fabricated metal products; (6) Machinery and equipment; Electrical and optical equipment; Transport equipment; (7) Other manufacturing sectors; (8) Electricity, gas and water supply; (9) Construction; (10) Wholesale and retail trade, Repairs; (11) Hotels and restaurants; (12) Transport and communications; (13) Financial intermediation and insurance; Real estate and renting, (14) Other services.

[18]Notice that juridical data are available at district level (26 districts) while job flows are calculated at province level (110 provinces). Each district may include more provinces (for example the Milan juridical district includes 8 provinces, while the Messina district includes only one). We estimate the same specification using job flows calculated at the district level and obtain similar results.

above such a threshold the law on unfair dismissals applies[19]. Bigger firms are located mostly in the North and in the Centre of Italy. Column 5 shows a considerable territorial heterogeneity in the share of irregular employment; this is higher in district located in southern regions, where it reaches as much as 28% (column 5), while it is around 8 to 10% in the North.

3   The Empirical Model

We estimate the impact of courts inefficiency on the labour market outcomes both at the province level through its effects on job flows and at the firm level through its effects on labour productivity and capital intensity. In both sets of estimates we proxy the overall days of trial with $IndexA$[20] A drawback of this measure is that the length of the labour trial can be endogenous: it can well be that the number of trials increases the burden for the judges, thus implying to a longer duration of trials in those districts where job reallocation is higher. In order to cope with this potential endogeneity problem, we instrument the days of labour process with the days of the civil process. As Civil Courts serve both FI Courts and as A Courts for the Justice of Peace and our data do not allow us to disentangle the days of trials before the Civil Courts serving as appellate courts from those for FI suits, we use the sum of the average days of trials in all the three stages ("Justice of Pease", "Civil Court" and "Court of Appeal") in each district as an instrument for the duration of labour trials.

3.1   Job flows

As discussed in the previous sections, labour courts' inefficiency increases firms uncertainty on the outcome of the decision; by this way it raises firing costs and hinders labour reallocation. In order to estimate the impact of the

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[19]See section 3.2

[20]Results remain qualitatively and quantitatively similar when we use a more standard indicator for trials length, which $IndexM$, as defined in the previous section.

trial length on labour market adjustments, we also take into account of the presence of irregular work, which in some regions of Italy is quite significant. In the regions where the share of illegal employment is higher, firing costs have a lower impact of labour market adjustments, since firms are also able to adjust their workforce through illegal/informal channels. In those areas we would thus expect that the effect of trials length on job flows is smaller. We thus follow the Rajan and Zingales (2008) methodology and estimate a standard differences-in differences specification by interacting our measure of court inefficiency with the share of irregular employment in order to better identify our relation of interest. We expect the coefficient of the interaction term to be positive.

The model specification is as follows:

$$
\begin{aligned}
JF_{spt} &= \beta_1 length_{dt} + \beta_2(length_{dt} \times irregular_{rt}) &(2)\\
&\quad + \beta_3 irregular_{rt} + \beta_4 X_{spt} + \mathbf{D}\boldsymbol{\eta} + u_{spt}
\end{aligned}
$$

where JF_{spt} are the job flow rates, i.e. job reallocation (JR), job destruction (JD) and job creation (JC), for sector s in province p at time t, $length_{dt}$ is the log of the average overall length of the labour trial in district d at time t (with $p \subseteq d$), $irregular_{rt}$ is the share of irregular employment over the overall employment in region r (with $p \subset r$), X_{spt} are province-sector time variant firm characteristics. The matrix D refers to a set of dummies that generally includes province, time and industry fixed effects as well as their interactions depending on the specification while u_{spt} is the error term. Industry dummies control for sector specific heterogeneity in the job flows such as, for example, the technological reallocation requirement, which is sector specific (e.g. the construction sector is typically charcterized by a higher intrinsic turnover than the manufacturing sector). Province dummies control for unobserved heterogeneity at the province level such as culture and geography. The year effects capture common shocks such as centrally implemented policies.[21]

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[21]Standard errors are clustered at district level to deal with concerns of serial correlation.

Since the intensity of job reallocation depends on various firm-specific characteristics, with job creation being negatively associated with firms' age and size, the set of controls X_{spt} include the log of the average age of the firm (age) and dummies ($size16 - 50; size51 - 250; size251-$) for the three size groups: between 16 and 50 (small firms), between 51 and 250 (medium firms), and larger than 251 (large firms) respectively. The reference group is represented by firms with less than 16 employees.

3.2 Labour productivity and capital deepening

In a second set of regressions we estimate the effect of labour courts' inefficiency on firms' labour productivity using firm level data. At the firm level the size of firms (proxied by the number of workers) plays a significant role on the impact of courts inefficiency on productivity. In our analysis, we exploit the fact that according to the Art. 18 of the "Statuto dei Lavoratori" (Law 300), firms with more than 15 employees have to reinstate workers and pay their foregone wages in case of unfair dismissals while firms with fewer than 16 employees have to pay severance payments without any reinstatement. The cost of unfair dismissals for firms with fewer than 15 employees is then lower relatively to the cost for firms with more than 15 employees. Given this legislative provision we can expect that the impact of courts inefficiency on firms outcome is stronger for firms hiring more than 15 workers. As in the previous specification, we follow the Rajan and Zingales (2008) methodology and estimate a standard differences-in differences specification by interacting our measure of court inefficiency with the share of irregular employment and with a dummy for the size of the firm. The positive coefficient of the latter interaction term provides another source of identification for the relationship of interest in addition to the share of irregular workers discussed in the previous section.

The model specification is as follows:

$$Y_{fst}^d \;=\; \beta_1 length_t^d + \beta_2(length_t^d \times irregular_t^r) + \beta_3 irregular_t^r \qquad (3)$$
$$+\beta_4(length_t^d \times size_{fs}^d) + \mu_t + \eta_f + u_{fst}^d$$

where Y_{fst}^d is the log of outcome variable (either labour productivity or capital-labour ratio) for firm f in district d, region r at time t ; $size_{fs}^d$ is a dummy variable which assumes value 1 for firms with a number of employees larger than 15 and zero otherwise; and μ_t and η_f stand for firm and time fixed effects respectively. As a robustness check, we present results also for the random effect model which includes time, sector and district dummies and their interactions.[22]

4 Empirical results

4.1 *De facto* EPL and job reallocation

Table 4 reports the results for the job flows as in the empirical specification 2. The coefficients reported in column 1-3 show that courts inefficiency as proxied by the average length of trials has a negative and significant impact on job flows (job reallocation, job destruction and job creation) at province level.

TABLE 4 AROUND HERE

Indeed, a 1% decrease in the duration of trials would increase JR by some .08 percentage points. In economic terms, the estimated coefficients are sizeable. For instance, moving from the 90th (less efficient) to the 10th percentile (more efficient) of the distribution of *indexA* (that is from the

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[22]In order to make sure that our variable of interest *length* captures the effect of the inefficiency of labour courts and not a more general inefficiency of the juridical system we run a set of fixed effects regressions in which we include the length of ordinary civil trials as an additional control. The estimated coefficients on our variable of interest (and its interactions) are qualitatively and quantitatively similar. Results are available upon request.

district of Lecce to the district of Milano in our sample) would imply a 6 percentage points increase in JR. An improvement in judicial efficiency impacts the overall job reallocation through an increase in both the rate of job destruction (by reducing firing cost) and, to less extent, the rate of job creation.

As expected, the negative effect of courts inefficiency on job destruction decreases with the share of irregular employment (columns 4-5) as the coefficient on the interaction terms is positive and statistically significant.

In order to illustrate this result, in Figure 1 we present the response of job flows to trials length as a function of the share of irregular workers. The slope of the curve here is precisely $\frac{\partial}{\partial irreg}\left(\frac{\partial JF}{\partial length}\right)$.

FIGURE 1 AROUND HERE

The marginal effect on JR is always negative and becomes smaller as the share of irregular worker increases; the result is significant for the whole distribution of irregular workers with the exception of the region of Calabria (the districts of Catanzaro and Reggio Calabria) where irregular work exceeds 26%. The same conclusions apply to JD, as the effect is negative and significant (except for Calabria), and decreases with the increase in irregular work. As a result, when we account for the share of irregular work, the marginal gain in terms of JR for Lecce in becoming as efficient (in labour trials) as Milan would be lower (i.e. 2 pp) than previously estimated, as in Lecce the size of informal economy is bigger than the national average.[23]

Slightly different results have been obtained for JC, as the marginal effect of the days of trial is still negative but is marginally significant only for regions where the informal economy is large enough. This result may suggest a possible substitution between formal and informal jobs (Besley and Burgess, 2004) when regulation become stricter.

This implies, that when firing becomes more costly and firms can easily access the irregular labour market (as it is the case for firms operating in

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[23]The share of irregular workers in Lecce is 17.95 percent against a national average of 15.06 percent.

the Southern of Italy), firms respond to by lowering the rate at which the unemployed get job in the formal sector, i.e. a reduction in job creation [24].

Notice that the overall effect of the share of irregular work on job flows is negative, implying a lower turnover (of regular jobs) in areas where the employment of irregular workers is a more diffuse practice. These results confirm that when the share of informal work is large (or the opportunity cost , firms adjust to shocks through the informal channels, thus reducing the pace of job reallocation of regular jobs.

4.2   *De facto* EPL and productivity

In Table 5 and 6 we explore the effect of courts' inefficiency on labour productivity and capital intensity at firm level as in specification 3. As the variable measuring court inefficiency varies both across districts and time, we are able to control for any time-invariant unobserved firm characteristic by the use of firm fixed effects, thus fully exploiting the firm level dimension of the dataset (columns 1-4). As a robustness check, we also report the random effects estimates (columns 5-8), in which we included different sets of year, industry and district dummies and their interactions.

TABLE 5 AROUND HERE

Our estimates show that the length of trials is associated with a lower level of labour productivity. In particular, the estimated coefficient is negative and highly significant. The point estimates is around -0.10, which means that reducing courts inefficiency from Lecce (at the 90th percentile of courts inefficiency distribution) to Milan (10th percentile) would raise the average value added per worker by around 7.3%.

The impact of the inefficiency of the judicial system on labour productivity is lower for those firms which face lower labour adjustment costs, either because the EPL is less stringent or because they have an easy access to

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[24]In two indipendent studies, Bosch at al (2007) and Hoek (2007) find a similar result comparing hiring and separations over the business cycle in formal and informal labour markets in Brazil.

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irregular employment. The estimates show that the average effect of trials length is smaller if firms size is below 15 employees, that is for firms which EPL is in general less strict (column 2). The marginal effect of decreasing the inefficiency from the 90th percentile to the 10th percentile would be a reduction in value added per worker ranging from 4.8% for firms with less than 15 employees to almost 8.6% for larger firms.

Consistently with the previous results on job flows, the negative effect of courts inefficiency on labour productivity is lower in regions with a higher share of irregular employment (column 3). The marginal effect of inefficiency remains negative and significant up to a threshold of irregular employment of around 19%, above which it turns to be not statistically significant (figure 2).[25] Moreover, notice that the marginal gain in productivity for Lecce in equalling the Milan court's efficiency is lower when the differences in irregular work are accounted for, i.e. 4.06%.

Finally, the judicial inefficiency has a negative and significant impact on capital intensity (Table 6).[26] The point elasticity is -0.105 (column 1), which implies that if courts in Lecce were as efficient as in Milan this would raise capital intensity on average by 7.6%. Moreover, the impact of courts inefficiency on capital deepening is bigger for firms hiring more than 15 workers (9.07% versus 4.39%, column 2).

The effect of court inefficiency on capital to labour ratio is in line with previous studies (Cingano et al., 2010), which highlight a negative impact of EPL on capital per worker in high reallocation sectors.

TABLE 6 AROUND HERE

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[25]In the period considered in the analysis (2006-2009), the regions which report a share of irregular employment above 19% are: Molise (19.7), Basilicata (20.5), Calabria (27.2), Sicilia (19.1), Sardegna (19.1).

[26]Theoretically, an increase in firing costs has an ambigous effect on capital to labour ratio.On the one hand stricter EPL may induce a substitution effect from labour to capital (Besley and Burgess, 2004); on the other hand EPL strengthen workers' bargaining power and exacerbate hold-up problems, resulting in less investment capital stock per worker (Bertola, 1994).

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Notice that irregular work does not significantly alter the impact of judicial inefficiency on capital deepening (column 4). Moreover, in specification 4 judicial inefficiency has a significant negative effect only for larger firms.

4.3   Sensitivity analysis

We check the sensitivity of our main results to the exclusion of specific sectors and districts in the regressions. Figure 4 shows the impact of dropping one industry at a time and one district at time of the average impact of courts' inefficiency on job reallocation and productivity.[27]

FIGURE 4 AROUND HERE

In this exercise, we focus on our baseline specifications as reported in columns (1) of tables 4 and 5. Dropping one sector at a time never turns the sign of our variable of interest, which remains negative in all the regressions. Moreover, the coefficients are statistically significant at the 5% level. Our estimates are stable when specific districts are excluded. as the estimated effects retain their negative sign and remain significant at standards levels in all cases.

5   Conclusions

In this paper, we assess the impact of firing costs on labour market adjustments by focusing on the within-country variation in the costs and enforcement of EPL. We argue that both labour courts' inefficiency and the presence of an informal labour market are two important dimensions of *de facto* EPL. So far, these two aspects have been largely neglected by the existing research. We provide evidence that courts' inefficiency - measured by the average length of trials - has per se high economic costs on the labour market in terms of misallocation of resources and productivity. In particu-

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[27] The same exercise as been repeated for job creation and job destruction. The estimated coefficients are robust to changes in the sample composition along both the district and industry dimensions.

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lar, we show that the length of trial significantly reduce job flows and this effect translates into a reduction of labour productivity at firm level. The dimension of the duration of trials then should not be overlooked as a determinant of real EPL in future studies. These findings also provide some policy implications. Reforms aimed at reducing the strictness of the employment protection legislation should also take into account their potential impact on the complexity and length of legal procedures as well as the courts' efficiency, this latter being an important dimension of actual EPL.

Our results also highlight the importance of the allocation effects of policy intervention in regions (or countries) where the opportunity costs of employing informal labor is small. We find that, in regions with a large share of irregular workers, stricter labour market regulation decreases the job creation of formal jobs, which may be partially offset by a higher pace of job creation of informal jobs. This may imply a transfer of workers from formal job, where firing costs are high, into informal jobs.

References

[1] Albrecht, J., L. Navarro and S. Vroman (2009), "The Effects of Labour Market Policies in an Economy with an Informal Sector", The Economic Journal, 119: 1105–1129

[2] Almeida R. and P. Carneiro (2012), "Enforcement of Labor Regulation and Informality," American Economic Journal: Applied Economics, American Economic Association, vol. 4(3), pages 64-89

[3] Belot, M., J. Boone and J. Van Ours (2004), "Does the recent success of some OECD countries in lowering their unemployment rates lie in the clever design of their labor market reforms?," Oxford Economic Papers, Oxford University Press, vol. 56(4).

[4] Belot, M., J. Boone and J. Van Ours (2007), "Welfare-Improving Employment Protection", Economica, 74, 381–396.

[5] Bertola, G. and R. Rogerson,(1997), "Institutions and labor reallocation," European Economic Review, vol. 41(6), pages 1147-1171.

[6] Besley, T. and R. Burgess (2004), "Can Labor Regulation Hinder Economic Performance? Evidence from India," The Quarterly Journal of Economics, MIT Press, vol. 119(1), pages 91-134, February.

[7] Blanchard, O. and P. Portugal (2001), "What Hides behind an Unemployment Rate? Comparing Portuguese and U.S. Labor Markets", American Economic Review 91(1):187-207.

[8] Blanchard, O. and J. Wolfers (2000), "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence," Economic Journal, vol. 110(462), pages C1-33.

[9] Boeri, T., and J. F. Jimeno (2005), "The Effects of Employment Protection: Learning from Variable Enforcement", European Economic Review, 49(8), 2057-2077.

[10] Botero J.; S. Djankov, R. La Porta, F. Lopez-de-Silane and A. Shleifer (2003), "The Regulation of Labor,"NBER Working Papers 9756, National Bureau of Economic Research, Inc.

[11] Bosch, M., E. Goni, and W. Maloney (2007), "The Determinants of Rising Informality in Brazil: Evidence from Gross Worker Flows," IZA Discussion Papers 2970.

[12] Cingano, F., M. Leonardi, J. Messina and G. Pica (2010), "The Effect of Employment Protection Legislation and Financial Market Imperfections on Investment: Evidence from a Firm-Level Panel of EU Countries", Economic Policy vol. 25, pages 117-163.

[13] Davis, S. J., J. Haltiwanger and S. Schuh (1996), "Job Creation and Job Destruction", MIT press.

[14] Fraisse, H., F. Kramarz and C. Prost (2009), "Labor Court Inputs, Judicial Cases Outcomes and Labor Flows: Identifying Real EPL", Working papers 256, Banque de FranceHeckman, J. and Page´s, C. (eds.) (2004). Law and Employment: Lessons from Latin America and the Caribbean, Chicago: NBER and University of Chicago Press.

[15] Hoek, J. (2006), "Labor Flows in Formal and Informal Labor Markets in Brazil", IZA Discussion Papers 2291

[16] Ichino, A., M. Polo, E. Rettore (2003), "Are judges biased by labour market conditions?", European Economic Review, 47(5) pp 913-944.

[17] Jappelli, T, M. Pagano and M. Bianco (2005), "Courts and Banks: Effects of Judicial Enforcement on Credit Markets," Journal of Money, Credit and Banking, vol. 37(2), pages 223-44.

[18] Kugler, A., and G. Pica, (2008), "Effects of Employment Protection on Worker and Job Flows: Evidence from the 1990 Italian Reform", Labour Economics, Vol. 15 (1) pp. 78-95.

[19] Kugler, A. and M, Kugler (2009). Labor market effects of payroll taxes in developing countries: evidence from Colombia , Economic Development and Cultural Change, vol. 57(2) pp. 335–58

[20] Lagos, R. (2006) "A Model of TFP", Review of Economic Studies, Wiley Blackwell, vol. 73(4), pages 983-1007, October

[21] Messina, J. and G. Vallanti (2007), "Job Flow Dynamics and Firing Restrictions: Evidence from Europe," Economic Journal, Royal Economic Society, vol. 117(521), 279-301, 06.

[22] Pissarides, C.A., (2000), Equilibrium Unemployment Theory, Cambridge MIT Press.

[23] Rajan, R. and L. Zingales (1998), "Financial Dependence and Growth", The American Economic Review 88: 559-586.

[24] Salvanes, K. G. (1997), " Market Rigidities and Labour Market Flexibility: An International Comparison," Scandinavian Journal of Economics, vol. 99(2), pages 315-33.

[25] Economic Forum (2012), The Global Competitiveness Report 2012-2013, Geneva, www.weforum.org/gcr.

[26] Venn, D. (2009), "Legislation, collective bargaining and enforcement: Updating the OECD employment protection indicators", www.oecd.org/els/workingpapers

Table 1: Length of labour trials – average values (2006-2009) and standard errors

Districts	[1] Ranking by Index A	[2] Index A	[3] FI length	[4] A length	[5] Index M	[6] Ranking by Index M
Torino	1	217.5	199.0	236.7	201.8	1
		11.2	*9.0*	*11.0*	*8.7*	
Trento	2	305.2	278.5	208.6	271.2	2
		40.8	*45.4*	*39.5*	*37.9*	
Milano	3	398.1	328.0	582.6	354.7	3
		36.9	*36.5*	*28.7*	*30.3*	
Genova	4	502.4	436.5	566.4	449.1	4
		70.4	*64.9*	*66.3*	*53.3*	
Campobasso	5	522.7	432.6	676.4	462.7	5
		77.7	*75.1*	*123.2*	*69.2*	
Brescia	6	575.0	527.8	387.6	511.9	6
		25.3	*21.3*	*51.5*	*19.1*	
Firenze	7	636.8	508.3	700.2	539.2	7
		54.5	*24.1*	*80.7*	*29.4*	
Catanzaro	8	745.2	632.0	743.1	642.1	9
		71.5	*57.7*	*152.4*	*46.0*	
Trieste	9	760.9	672.8	940.2	694.1	12
		64.6	*77.1*	*209.2*	*60.8*	
Ancona	10	776.8	562.9	1077.4	629.9	8
		114.5	*56.1*	*448.5*	*96.1*	
Bologna	11	782.8	583.9	1490.6	683.7	10
		36.6	*18.2*	*64.1*	*18.3*	
Roma	12	847.6	560.4	1301.6	685.3	11
		43.2	*24.5*	*204.1*	*28.1*	
Venezia	13	853.3	731.0	1066.5	762.0	14
		41.6	*29.9*	*88.0*	*27.9*	
Napoli	14	875.3	684.4	1207.9	757.7	13
		50.2	*51.8*	*204.4*	*44.9*	
Palermo	15	900.4	790.3	817.7	791.2	16
		137.2	*120.1*	*61.5*	*100.8*	
L Aquila	16	927.8	834.2	508.4	778.9	15
		74.1	*55.2*	*55.2*	*48.6*	
Caltanissetta	17	983.3	932.9	466.5	874.7	17
		233.0	*228.3*	*27.9*	*198.0*	
Potenza	18	1096.8	1036.5	412.1	954.9	18
		105.9	*90.0*	*92.7*	*82.1*	
Cagliari	19	1116.0	1049.6	429.9	969.1	19
		31.3	*26.2*	*64.7*	*31.5*	
Messina	20	1157.8	953.5	1066.0	969.5	20
		106.8	*61.6*	*69.6*	*53.5*	
Perugia	21	1188.7	1070.4	642.8	982.9	21
		115.4	*56.3*	*86.8*	*45.2*	

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Reggio Calabria	22	1232.8	1034.2	1209.9	1047.7	22
		956.9	*878.1*	*244.2*	*776.3*	
Catania	23	1298.3	1018.5	1384.1	1078.4	23
		50.5	*55.1*	*170.4*	*56.4*	
Lecce	24	1420.0	1320.4	578.7	1198.3	24
		200.5	*184.0*	*96.6*	*136.4*	
Bari	25	1507.4	1405.9	899.3	1347.9	26
		230.8	*220.2*	*124.6*	*175.6*	
Salerno	26	1526.9	1422.1	481.2	1205.7	25
		665.8	*657.1*	*40.3*	*481.2*	

Table 2: Length of civil trials – average values (2006-2009) and standard errors

District	[1] Justice of Peace	[2] Civil Courts	[3] Courts of Appeal	[4] Total length	[5] Ranking
Torino	139.5	258.5	452.4	850.4	2
	17.5	*5.3*	*9.5*	*19.3*	
Trento	132.1	207.1	258.4	597.6	1
	13.0	*12.3*	*8.4*	*28.0*	
Milano	169.4	298.7	824.0	1,292.1	4
	9.2	*19.0*	*13.5*	*15.4*	
Genova	247.5	374.7	788.5	1,410.7	8
	24.3	*38.3*	*24.5*	*40.0*	
Campobasso	161.0	485.7	680.3	1,327.0	6
	20.2	*32.3*	*41.0*	*21.0*	
Brescia	173.5	319.0	892.3	1,384.8	7
	6.1	*9.8*	*99.0*	*86.1*	
Firenze	226.8	359.5	910.1	1,496.4	9
	16.5	*6.0*	*37.6*	*37.2*	
Catanzaro	410.7	655.9	1,013.4	2,079.9	23
	23.6	*48.1*	*55.6*	*89.5*	
Trieste	118.2	281.8	647.5	1,047.5	3
	9.9	*14.8*	*61.5*	*70.7*	
Ancona	196.1	361.5	1,084.2	1,641.8	14
	12.6	*18.6*	*89.4*	*60.1*	
Bologna	229.2	333.6	1,278.9	1,841.7	18
	26.4	*18.9*	*54.8*	*51.1*	
Roma	399.4	448.6	1,178.7	2,026.7	20
	79.6	*13.0*	*65.3*	*127.8*	
Venezia	213.9	362.4	1,177.3	1,753.6	16
	18.4	*24.4*	*87.6*	*79.9*	
Napoli	412.1	528.6	1,126.8	2,067.6	22
	22.2	*9.7*	*31.9*	*50.0*	
Palermo	232.4	557.1	846.9	1,636.4	13
	9.3	*40.4*	*56.5*	*89.7*	
L Aquila	228.9	468.4	858.0	1,555.3	10
	13.2	*35.1*	*42.4*	*64.1*	
Caltanissetta	292.8	611.9	674.3	1,579.0	12
	25.4	*49.2*	*53.0*	*104.7*	
Potenza	297.2	840.9	877.2	2,015.3	19
	63.6	*18.5*	*69.5*	*68.5*	
Cagliari	252.5	580.7	723.3	1,556.5	11
	6.2	*48.9*	*17.4*	*46.5*	
Messina	427.4	823.4	1,237.9	2,488.7	25
	27.6	*29.0*	*94.5*	*98.3*	

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Perugia	247.6	442.7	605.2	1,295.4	5
	19.8	*14.4*	*43.5*	*67.4*	
Reggio Calabria	428.8	648.8	2,043.5	3,121.1	26
	101.7	*126.9*	*190.3*	*165.6*	
Catania	267.2	600.4	1,217.5	2,085.1	24
	8.1	*24.7*	*67.2*	*81.5*	
Lecce	357.4	723.9	740.9	1,822.2	17
	25.6	*54.7*	*62.1*	*30.4*	
Bari	322.0	844.8	883.9	2,050.8	21
	12.9	*59.9*	*97.9*	*77.1*	
Salerno	308.2	687.4	751.1	1,746.8	15
	12.4	*47.8*	*42.7*	*68.8*	

Table 3: Job flows, firm size and the share of irregular workers (%) –

average values (2006-2009) and standard errors

Districts	[1] JC	[2] JD	[3] JR	[4] Firm size	[5] Irregular Workers (%)
Torino	0.028	0.033	0.061	58.763	10.247
	0.025	*0.037*	*0.041*	*70.309*	*0.280*
Trento	0.031	0.040	0.071	59.695	8.654
	0.027	*0.050*	*0.054*	*49.941*	*0.192*
Milano	0.029	0.035	0.064	45.375	8.677
	0.026	*0.041*	*0.044*	*30.851*	*0.483*
Genova	0.037	0.037	0.074	39.512	11.812
	0.031	*0.045*	*0.050*	*29.905*	*1.306*
Campobasso	0.039	0.056	0.095	32.750	19.801
	0.032	*0.053*	*0.053*	*24.456*	*0.374*
Brescia	0.027	0.034	0.061	48.619	8.656
	0.020	*0.033*	*0.036*	*34.466*	*0.489*
Firenze	0.034	0.035	0.068	40.967	8.955
	0.028	*0.039*	*0.045*	*32.880*	*0.222*
Catanzaro	0.057	0.044	0.101	39.976	27.969
	0.044	*0.048*	*0.065*	*26.788*	*0.993*
Trieste	0.033	0.035	0.069	59.827	10.674
	0.030	*0.043*	*0.051*	*93.376*	*0.243*
Ancona	0.031	0.034	0.064	43.162	10.155
	0.027	*0.042*	*0.047*	*28.337*	*0.245*
Bologna	0.034	0.035	0.069	65.640	8.129
	0.031	*0.043*	*0.050*	*102.913*	*0.229*
Roma	0.038	0.042	0.080	68.253	10.748
	0.034	*0.042*	*0.051*	*104.285*	*0.414*
Venezia	0.030	0.034	0.064	49.620	8.703
	0.024	*0.038*	*0.044*	*42.574*	*0.294*
Napoli	0.048	0.046	0.094	36.111	17.087
	0.038	*0.046*	*0.049*	*25.059*	*1.283*
Palermo	0.046	0.055	0.101	36.139	19.205
	0.035	*0.060*	*0.067*	*34.886*	*0.615*
L Aquila	0.035	0.048	0.083	52.324	11.913
	0.033	*0.056*	*0.063*	*41.387*	*0.309*
Caltanissetta	0.065	0.054	0.118	32.798	19.110
	0.046	*0.069*	*0.073*	*24.463*	*0.559*
Potenza	0.034	0.048	0.082	55.419	20.604
	0.036	*0.053*	*0.058*	*80.439*	*1.210*
Cagliari	0.043	0.045	0.089	42.123	19.104
	0.037	*0.054*	*0.059*	*33.382*	*0.789*
Messina	0.051	0.050	0.102	35.427	19.172
	0.039	*0.050*	*0.051*	*25.965*	*0.628*

Perugia	0.034	0.036	0.070	56.851	12.061
	0.032	*0.042*	*0.048*	*35.120*	*0.571*
Reggio Calabria	0.053	0.051	0.104	40.220	27.970
	0.036	*0.060*	*0.062*	*38.963*	*0.936*
Catania	0.050	0.048	0.098	36.442	19.185
	0.036	*0.051*	*0.054*	*21.817*	*0.636*
Lecce	0.047	0.049	0.096	39.697	17.950
	0.041	*0.051*	*0.060*	*34.831*	*0.763*
Bari	0.039	0.047	0.086	43.943	17.983
	0.030	*0.044*	*0.048*	*34.299*	*0.766*
Salerno	0.046	0.058	0.104	34.103	17.136
	0.029	*0.067*	*0.069*	*14.513*	*1.310*

Table 4: The impact of court inefficiency on job reallocation, job destruction and job creation.

	[1]	[2]	[3]	[4]	[5]	[6]
	JR	JD	JC	JR	JD	JC
Size 16-50	-0.024	-0.018	-0.006	-0.024	-0.018	-0.006
	(6.40)***	(4.77)***	(2.50)**	(6.54)***	(4.83)***	(2.59)***
Size 51-250	-0.036	-0.029	-0.007	-0.036	-0.029	-0.007
	(8.94)***	(7.17)***	(2.84)***	(9.05)***	(7.15)***	(3.00)***
Size 251-	-0.050	-0.040	-0.010	-0.051	-0.040	-0.011
	(11.35)***	(9.46)***	(3.46)***	(11.50)***	(9.46)***	(3.60)***
Age	-0.020	-0.006	-0.014	-0.020	-0.007	-0.014
	(4.55)***	(1.53)	(4.99)***	(4.67)***	(1.59)	(5.04)***
Length	-0.083	-0.060	-0.023	-0.140	-0.146	0.006
	(5.23)***	(4.10)***	(2.76)***	(3.58)***	(4.12)***	(0.25)
Irregular				-0.028	-0.036	0.008
				(2.05)**	(2.97)***	(1.15)
Length x Irr.				0.004	0.005	-0.001
				(2.13)**	(3.08)***	(1.18)
Intercept	0.636	0.429	0.208	1.030	0.986	0.044
	(7.58)***	(5.51)***	(4.60)***	(4.28)***	(4.53)***	(0.31)
Obs.	4093	4093	4093	4093	4093	4093
R^2	0.24	0.13	0.17	0.25	0.13	0.17

Note: Robust t-statistics in parenthesis. ***, **, * denote significant at the 10%, 5% and 1% level respectively. All the specifications includes sector, year, province dummies and sector-year interactions. Length has been instrumented with the duration of civil trails which is not correlated with the number of labour litigations brought to court.

Table 5: The impact of court inefficiency on labour productivity

|	(1) fe	(2) fe	(3) fe	(4) fe	(5) re	(6) re	(7) re	(8) re
Length	-0.102	-0.067	-0.218	-0.178	-0.091	-0.079	-0.235	-0.196
	(4.70)***	(3.20)***	(3.25)***	(4.07)***	(4.27)***	(3.81)***	(4.36)***	(3.09)***
Length x size		-0.052		-0.052		-0.041		-0.041
		(117.67)***		(118.51)***		(118.26)***		(118.25)***
Length x irr			0.009	0.009			0.010	0.009
			(1.90)*	(1.99)**			(2.22)**	(2.04)***
irr			-0.064	-0.063			-0.072	-0.065
			(1.94)*	(1.96)*			(2.23)**	(2.08)***
Intercept	4.703	4.617	5.502	5.938	5.081	4.988	5.492	5.364
	(33.44)***	(33.92)***	(12.17)***	(14.04)***	(15.61)***	(15.58)***	(13.02)***	(12.28)***
Obs.	326683	326683	326683	326683	326683	326683	326683	326683
N. firms	121355	121355	121355	121355	121355	121355	121355	121355

Note: Robust t-statistics in parenthesis. ***, **, * denote significant at the 10%, 5% and 1% level respectively. The random effects specifications includes sector, year, district dummies and their interactions.

## Table 6: The impact of court inefficiency on capital to labour ratio

	(1) fe	(2) fe	(3) fe	(4) fe	(5) re	(6) re	(7) re	(8) re
Length	-0.105	-0.061	-0.077	-0.027	-0.101	-0.101	-0.09	-0.045
	(3.73)***	(2.23)**	(0.89)	(0.33)	(3.59)***	(9.48)**	(1.04)	(0.53)
Length x size		-0.065		-0.065		-0.055		-0.055
		(114.95)***		(115.01)***		(103.79)***		(103.90)***
Length*irr			-0.002	-0.002			-0.001	-0.001
			(0.40)	(0.40)			(0.12)	(0.24)
irr			-0.024	-0.026			-0.016	-0.020
			(0.56)	(0.62)			(0.37)	(0.48)
Constant	4.259	4.149	3.955	3.825	4.947	4.817	3.923	3.804
	(23.42)***	(23.54)***	(6.76)***	(6.75)***	(7.41)***	(7.25)***	(6.99)***	(6.97)***
Obs	326683	326683	326683	326683	326683	326683	326683	326683
N. firms	121355	121355	121355	121355	121355	121355	121355	121355

Note: Robust t-statistics in parenthesis. ***, **, * denote significant at the 10%, 5% and 1% level respectively. The random effects specifications includes sector, year, district dummies and their interactions.
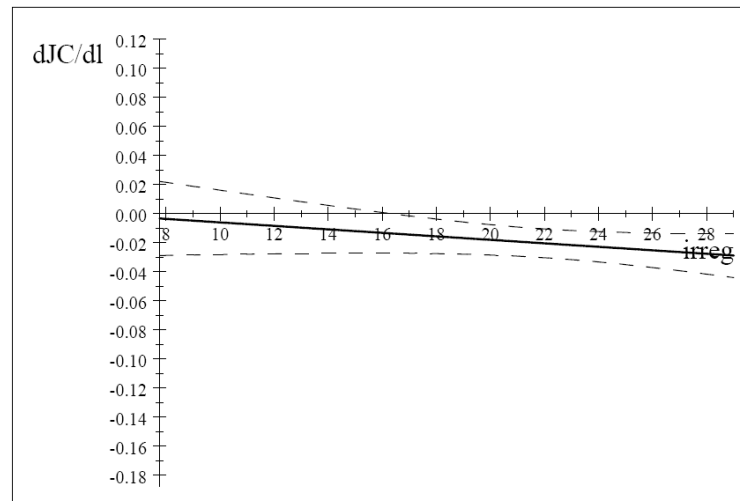
Figure 1: Predicted response of job flows to courts' inefficiency as a function of the share of regional share of irregular workers
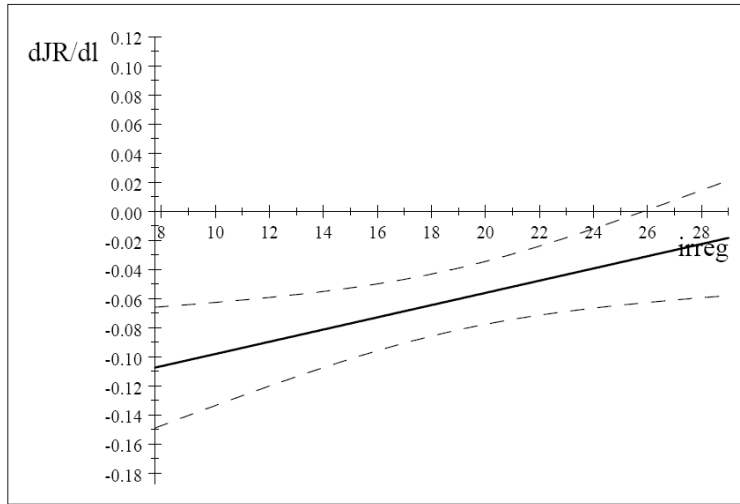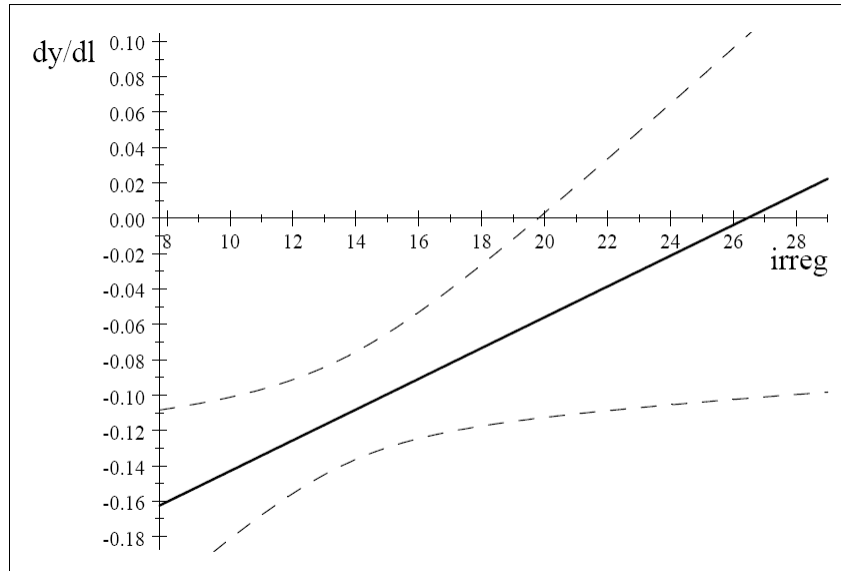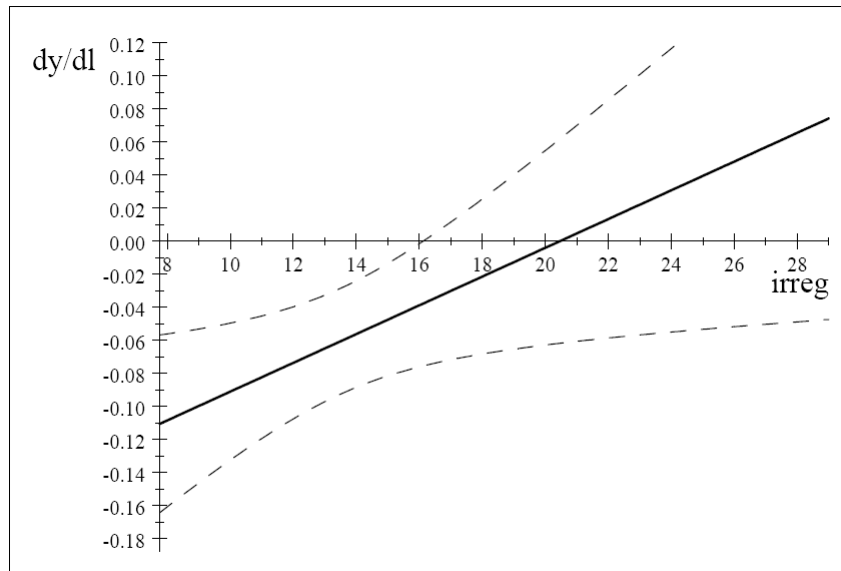

Job reallocation
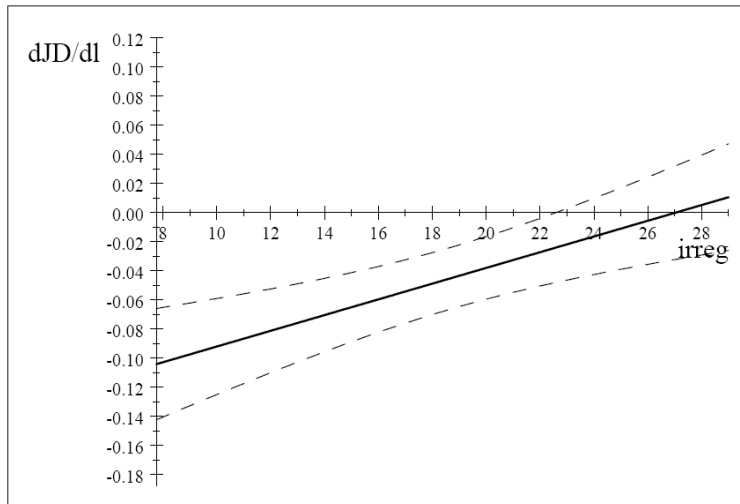
Job destruction

Job creation

Figure 2: Predicted response of labour productivity to courts inefficiency as a function of the share of regional share of irregular workers

Labour Productivity (size>15)

Labour Productivity (size<=15)

Figure 3: Predicted response of capital intensity to courts inefficiency as a function of the share of regional share of irregular workers

Capital Intensity (size>15)

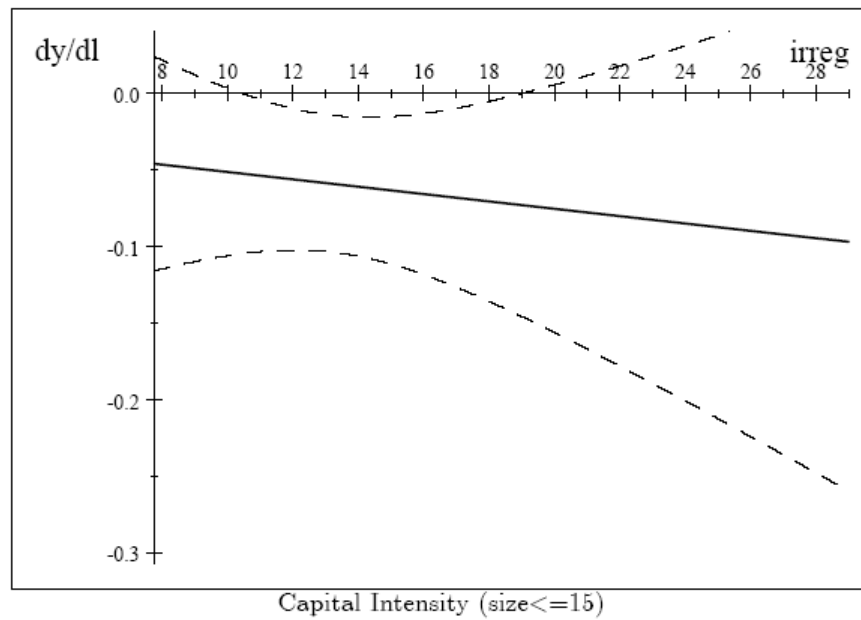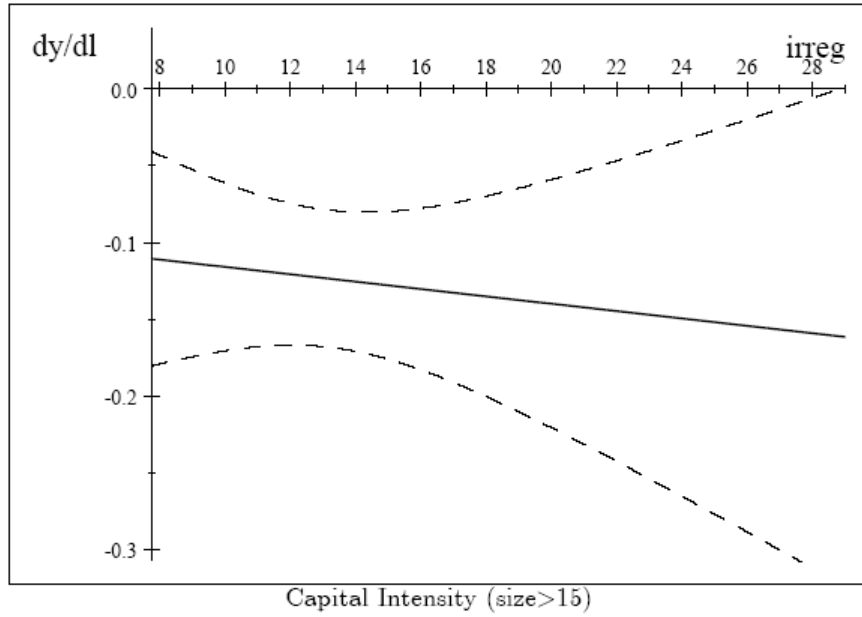
Capital Intensity (size<=15)

Figure 4: Sensitivity Analysis: Estimated coefficient on courts' inefficiency and 95% confidence intervals, excluding one district or one industry at a time