

Dismissals for cause: The difference that just eight paragraphs can make

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Agenda

- 1 Introduction
- 2 The 1989 employment law reform
- 3 Identification
- 4 Data
- 5 Results
- 6 Robustness analysis
- 7 Conclusions

Motivation (1)

- Employment protection legislation (EPL) is typically studied as a restriction to adjustments prompted by economic shocks (eg Lazear, QJE 1990; Hopenhayn & Rogerson, JPE 1993)
- However, EPL can also affect adjustments related to worker performance or disciplinary issues
- While some countries have 'employment at will'...
- ... in other countries firing for cause can be particularly challenging (notice periods, notifications, approval of third parties, retraining or replacement prior to dismissal, compulsory worker reinstatements, etc), especially when severance payments are 'large'

Motivation (2)

- Such deadweight losses can reduce worker turnover
- Problems of adverse selection, liquidity constraints and worker morale may undermine bilateral agreements (not going to court)

This paper

- Goal: to assess the causal impact of administrative procedures that restrict dismissals for cause
- Exploits a quasi-natural experiment that occurred in Portugal in 1989
- Portugal is interesting case in EPL literature due to its high level of protection to incumbents (Blanchard & Portugal, AER 2001; OECD 2004; Botero *et al*, QJE 2004)
- Employs difference-in-differences propensity score matching methods
- Covers large number of outcome variables of interest (job creation, worker flows, wages and firm performance) over a long period of time (1990-1999)

Before 1989

- *Decreto-Lei 372-A, 1975*: cause existed only when it was “absolutely and definitively impossible, in the present and in the future, for the worker to perform his/her job or for the firm to take the worker’s labour” (article 8)
- Particularly lengthy administrative procedure (detailed document, several witnesses, etc)
- If any formality not respected, then court could void the dismissal and force a reinstatement (or a settlement)

Decreto-Lei 64-A, 1989

- Softening dismissal constraints (structural, technological or business cycle issues could be invoked by firms)

Decreto-Lei 64-A, 1989

- Softening dismissal constraints (structural, technological or business cycle issues could be invoked by firms)
- While benchmark administrative procedure remained largely unchanged, **firms employing 20 or less workers** could dismiss for cause by following a much streamlined procedure (until then, no differentiation in terms of size or other variable)
- Out of the 12 specific rules (a paragraph each) that applied to larger firms, only four had to be followed by smaller firms
- Moreover, the eight paragraphs had considerable 'bite' - smaller firms didn't have to: discuss reasons for dismissal, interview witnesses indicated by worker, involve unions in the process, write a document detailing the steps carried out during the dismissal, etc

Related reforms

- Italy and Germany: but identification less clear due to similar reforms just before and/or just after main reform (Kugler & Pica, *Lab Econ* 2007; Bauer *et al*, *Economica* 2007)
- US: introduction of wrongful-discharge laws (Autor *et al*, *REStat* 2006; Autor *et al*, *Econ Jnl* 2007)

Evaluation framework

- Y_{it}^D = potential outcome of interest for firm i at time t had they been in state D
- $D = 1$ if exposed to the treatment (a firm employing less than 20 workers in March 1989)
- Fundamental identification problem: can't observe individual i in both states, at time t
- However, with appropriate control group, can estimate ATT
- Difference-in-differences (DID) estimator

$$\hat{\alpha}_{\text{DID}} = \{E[Y_{it} | D = 1] - E[Y_{it} | D = 0]\} - \{E[Y_{it'} | D = 1] - E[Y_{it'} | D = 0]\} \quad (1)$$

DID

- Requires time-invariance assumption:

$$E[Y_{it}^0 - Y_{it'}^0 \mid D = 1] = E[Y_{it}^0 - Y_{it'}^0 \mid D = 0], \quad (2)$$

- Time-invariance assumption can be too stringent if treated and control groups are not balanced in covariates that are believed to be associated with the outcome variable (Ashenfelter, AER 1978)
- DID setup can be extended to accommodate a set of covariates:

$$Y_{it} = \lambda D + \tau_t + \theta' Z_{it} + \alpha_D D \tau_t + \varepsilon_{it}, \quad (3)$$

- However, this estimator does not impose common support on the distribution of the Z 's across the cells defined by the D-in-D approach.

DID PSM 1

- We complement the estimator with a matching framework (Rosenbaum & Rubin, *Biometrika* 1983): DDM (Heckman *et al*, *REStud* 1997, Heckman *et al*, *REStud* 1998)
- DDM can eliminate some sources of bias present in non-experimental settings, improving the quality of evaluation results significantly (Smith & Todd, *Jnl Ectrics* 2005)
- DDM particularly appropriate if: 1) rich set of covariates; 2) data compiled by same agency; and 3) can use data for comparison groups from same local labor market (Heckman *et al*, *REStud* 1997). All conditions met here

DID PSM 2

- DDM with panel data: 1) calculate differences over time in dependent variable for each observation; and 2) match treatment and control units using propensity score estimates based on 'before'-period characteristics:

$$\hat{\alpha}_{DDM} = E \left[(Y_t^1 - Y_{t'}^1) - \hat{E} (Y_t^0 - Y_{t'}^0 | P) \right], \quad (4)$$

where $\hat{E}(Y|P)$ represents the expected outcome of individuals in the control group matched with those in the treatment group.

- Requires a conditional mean independence assumption:

$$E [Y_{it}^0 | X, D = 1] = E [Y_{it}^0 | X, D = 0] = E [Y_{it}^0 | X], \quad (5)$$

- Requires a nonparticipant analogue for each participant:
 $\Pr(D = 1 | X) < 1$.

Quadros de Pessoal

- Annual census of all firms with at least one employee, conducted by Ministry of Employment
- All employees of each firm
- Unique identifiers for both firms and employees
- Several variables describing firms (industry, region, sales, equity, no. of workers, ownership type, etc)...
- ... and workers (age, gender, schooling, tenure, occupation, job level, wages, etc)
- Coverage: 1982-... (this paper: 1986-1999); no employee-level data for 1990
- Census month: March up to 1993, October from 1994

Construction of data set

- Consider only firms employing between 10 and 30 workers in 1989 - want firms as similar as possible, except for firm size
- Concern about **mean reversion** (the 'regression falacy', Davis *et al*, MIT 1996): only firms that are 'permanently' small (10-19 from 1987 to 1989) or 'permanently' large (21-30 from 1987 to 1989)
- 7,480 firms, 5,863 small (total of 122k individuals employed)
- Construction of different measures of job and worker flows (Davis *et al*, MIT 1996)

Descriptive statistics, firm characteristics in 1989

Variable	Treatment group			Control group		
	Mean	St.Dev.	Obs	Mean	St.Dev.	Obs
Firm size	13.86	2.62	5863	25.25	2.65	1617
Sales per worker	89.67	470.99	4815	92.39	252.64	1354
Foreign firm	0.01	0.1	5863	0.01	0.11	1617
Year firm started	1970	20.72	4587	1966.12	27.96	1338
Net job creation rate	-0.05	2.07	5599	-0.04	2.46	1566
Hiring rate	0.18	0.16	5599	0.16	0.13	1566
Separation rate	0.19	0.16	5599	0.16	0.12	1566
Job reallocation rate	0.11	0.1	5599	0.07	0.06	1566
Worker reallocation rate	0.37	0.29	5599	0.33	0.23	1566
Churning rate	0.26	0.27	5599	0.25	0.23	1566
Schooling	5.62	1.86	5805	5.65	1.8	1595
Experience	23.59	7.19	5787	24.12	6.52	1594
Tenure	7.47	4.62	5821	8.45	4.54	1613
Female	0.35	0.31	5863	0.36	0.31	1617
Job level	5.72	0.73	5763	5.64	0.64	1602
Hourly pay	2.72	1.45	5732	2.96	1.53	1596

Theoretical predictions

- Net job creation: ambiguous effect
- Worker reallocation: positive effect (at least under 'general EPL')
- Wages: ambiguous effect (Lazear vs bargaining)
- Firm performance: ambiguous effect (firm-specific skills vs moral hazard)
- (Welfare: ambiguous effect)

Matching

Variables used for matching:

- Worker characteristics (averaged to the firm level): schooling, experience, tenure, gender, hourly pay, hours, job level
- Firm characteristics: foreign ownership, age, firm type dummies, industry dummies, region dummies
- All variables referring to 1989 (except dummies) also entered in squares and cubes and their lagged values

Epanechnikov kernel matching

Balancing of covariates

Variable	Sample	Mean		% bias	% reduct bias	t-test	
		Treated	Control			t	$p > [t]$
Schooling	Unmatched	5.6168	5.6442	-1.5		-0.48	0.633
	Matched	5.6162	5.6674	-2.9	-87.2	-1.3	0.193
Experience	Unmatched	23.46	24.104	-9.5		-2.9	0.004
	Matched	23.443	23.416	0.4	95.8	0.17	0.866
Tenure	Unmatched	7.5301	8.5899	-23.4		-7.29	0
	Matched	7.5424	7.3735	3.7	84.1	1.74	0.082
Female	Unmatched	0.33958	0.34491	-1.8		-0.56	0.577
	Matched	0.33959	0.33718	0.8	54.8	0.37	0.71
Pay	Unmatched	2.719	2.9566	-16.7		-5.37	0
	Matched	2.7108	2.781	-4.9	70.5	-2.48	0.013
Hours	Unmatched	168.98	168.75	0.9		0.29	0.769
	Matched	169.01	166.71	9.5	-911.1	4.13	0
Job level	Unmatched	5.7259	5.6502	11.2		3.35	0.001
	Matched	5.728	5.7405	-1.9	83.4	-0.81	0.42

Job flows

<i>Variable</i>	<i>Year</i>	<i>ATT</i>	<i>t(ATT)</i>	<i>Treated</i>	<i>Control</i>
Net job creation rate	1990	0.034	4.3	3923	1191
	1991	-0.025	-2.8	3482	1088
	1992	-0.012	-1.4	3392	1066
	1993	0.019	2.0	3405	1056
	1994	0.011	0.9	3421	1061
	1995	0.001	0.1	3319	1052
	1996	0.007	0.6	3198	977
	1997	0.028	2.6	3114	954
	1998	-0.012	-1.1	2967	906
	1999	0.014	1.2	2924	892
Net job creation rate (2)	1991	-0.001	-0.1	3562	1117
	1992	-0.012	-1.4	3392	1066

Worker flows

<i>Variable</i>	<i>Year</i>	<i>ATT</i>	<i>t(ATT)</i>	<i>Treated</i>	<i>Control</i>
Hirings rate	1991	-0.001	-0.2	3562	1117
	1992	-0.002	-0.3	3392	1066
	1993	-0.000	-0.0	3405	1056
	1994	0.007	1.0	3421	1061
	1995	0.001	0.1	3319	1052
	1996	0.005	0.7	3198	977
	1997	0.008	0.9	3114	954
	1998	-0.003	-0.3	2967	906
	1999	0.002	0.3	2924	892
	Separations rate	1991	0.000	0.0	3562
1992		0.010	1.3	3392	1066
1993		-0.019	-2.2	3405	1056
1994		-0.005	-0.4	3421	1061
1995		-0.000	-0.0	3319	1052
1996		-0.002	-0.2	3198	977
1997		-0.020	-1.8	3114	954
1998		0.009	0.9	2967	906
1999		-0.011	-1.1	2924	892

Worker flows - possible caveats

- Data at relatively low frequency
- No info on hirings or separations for 1990
- Increase in involuntary separations compensated by decrease in voluntary separations?
- Strategic behaviour by firms in adjusting their firm size (marginal factor cost of 21st employee becomes very high)

Wages

<i>Variable</i>	<i>Year</i>	<i>ATT</i>	<i>t(ATT)</i>	<i>Treated</i>	<i>Control</i>
Wages	1991	-0.016	-2.0	3991	1211
	1992	-0.022	-2.2	4010	1198
	1993	-0.024	-2.4	3966	1199
	1994	-0.015	-1.4	3980	1207
	1995	-0.011	-1.1	3813	1152
	1996	-0.024	-2.1	3633	1080
	1997	-0.035	-2.9	3567	1079
	1998	-0.033	-2.9	3399	1022
	1999	-0.012	-1.0	3360	1001

Firm performance

<i>Variable</i>	<i>Year</i>	<i>ATT</i>	<i>t(ATT)</i>	<i>Treated</i>	<i>Control</i>
Sales per worker	1991	0.046	1.8	3336	987
	1992	0.052	2.0	3320	981
	1993	0.062	2.1	3272	980
	1994	0.002	0.1	3136	945
	1995	0.065	2.0	2953	873
	1996	0.043	1.4	2832	839
	1997	0.025	0.7	2724	812
	1998	0.105	2.9	2673	790
	1999	0.087	2.5	2635	791

Results robust to:

- Changes in inputs (capital, worker characteristics)
- Different matching methods
- Sample of continuing firms only
- Artificial size threshold

Artificial size threshold - Wages

<i>Variable</i>	<i>Year</i>	<i>ATT</i>	<i>t(ATT)</i>	<i>Treated</i>	<i>Control</i>
Wages	1991	-0.008	-0.7	1212	494
	1992	-0.005	-0.4	1198	489
	1993	-0.027	-1.9	1192	482
	1994	-0.048	-3.1	1213	499
	1995	-0.021	-1.5	1151	479
	1996	-0.013	-0.8	1090	449
	1997	-0.019	-1.2	1077	450
	1998	-0.018	-1.1	1019	434
	1999	-0.026	-1.5	999	422

Artificial size threshold - Firm performance

<i>Variable</i>	<i>Year</i>	<i>ATT</i>	<i>t(ATT)</i>	<i>Treated</i>	<i>Control</i>
Sales per worker	1991	0.006	0.2	1006	418
	1992	-0.012	-0.3	998	417
	1993	-0.087	-2.2	999	417
	1994	-0.016	-0.4	968	407
	1995	-0.018	-0.4	897	379
	1996	-0.021	-0.5	859	368
	1997	0.002	0.0	827	362
	1998	-0.043	-0.8	807	345
	1999	-0.077	-1.6	806	352

Conclusions

Dismissals-for-cause regulations (as those studied here):

- Do not affect worker flows
- Increase (incumbent) worker wages (probably due to bargaining)
- Reduce firm performance (probably due to lower worker effort)

Current research

- Analysis of worker-level effects of the reform (wages and displacement effects)
- Preliminary results support bargaining interpretation: lower wage growth documented for more senior/more skilled workers.