Friday Morning Fever. Evidence from a randomized experiment on Sickness Leave Monitoring in the Public Sector

Bank of Italy and World Bank Workshop
22 September 2021

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September 22, 2021

Roman traffic policemen in 2014 New Year's Eve

MENU | CERCA la Repubblica ABBONATI QUOTIDIANO R | ACCEDI

I vigili urbani di Roma? Assenti e assolti

di Luigi Irdi

▲ Vigili urbani in parata a Roma (Paolo Tre/A3/Contrasto)

Il 31 dicembre 2014, ben 767 agenti "sparirono" dai turni del Capodanno. Scoppiò lo scandalo e partì l'inchiesta. Che ora sta per chiudersi. Come? Praticamente senza un colpevole

04 APRILE 2017 PUBBLICATO PIÙ DI UN ANNO FA 4 MINUTI DI LETTURA

ROMA. «Me lo ricordo bene quel giorno». Era il 2014 e Ignazio Marino, allora sindaco di Roma, decise di incontrare i vigili urbani. «Entrai nella Sala delle Bandiere in Campidoglio e intorno al lungo tavolo, quello che ha visto al lavoro Mazzini e Garibaldi, c'erano una trentina di persone. Pensai di aver sbagliato sala e invece no. Erano proprio i rappresentanti delle innumerevoli sigle sindacali della polizia municipale romana». Che ogni confronto con quegli interlocutori non sarebbe stata una passeggiata Marino lo capì ancora meglio quando, nel corso delle trattative, il responsabile della Uil Francesco Croce si abbandonò a una suggestiva rievocazione storica: «Ci farete fare come i russi con Napoleone? Bruceremo anche noi i campi di grano? Arriverete e troverete tutto bruciato? Non è bella questa immagine? A me piace!».

Leggi anche

Chi difenderà i consumatori dalle associazioni dei consumatori?

Aleppo a Roma, indovina chi porta la cena

La cultura in Italia è senza rete

This Paper: what do we do?

- Although absenteeism is a crucial concern for the public sector, there is little evidence about the effectiveness of sickness leave **monitoring**: the enforcement has to be considered to assess the policy optimality.

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- We use rich administrative data (including work histories) on the universe of sickness leave in public sector (5,500,000 certificates) and workers' career.

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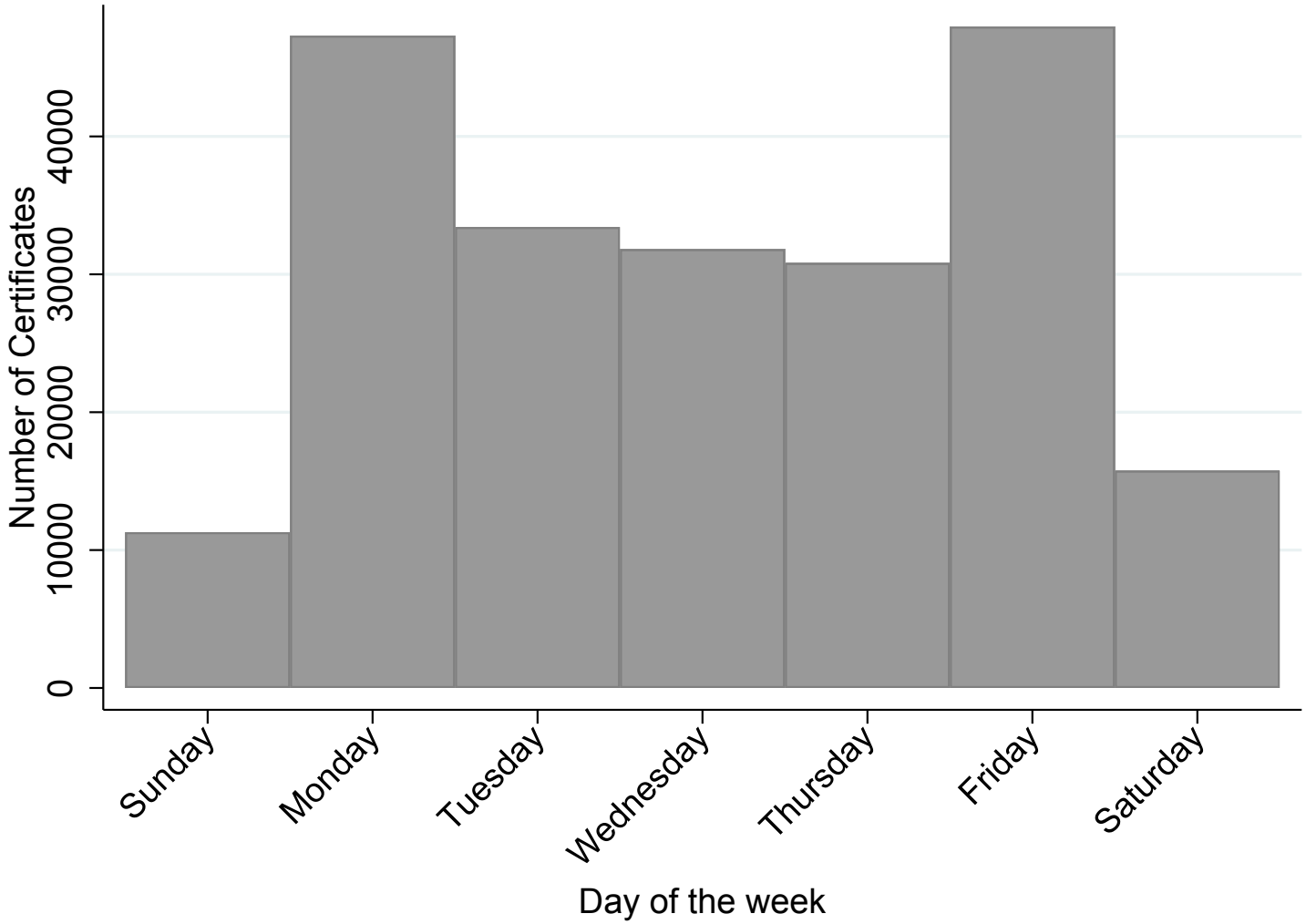
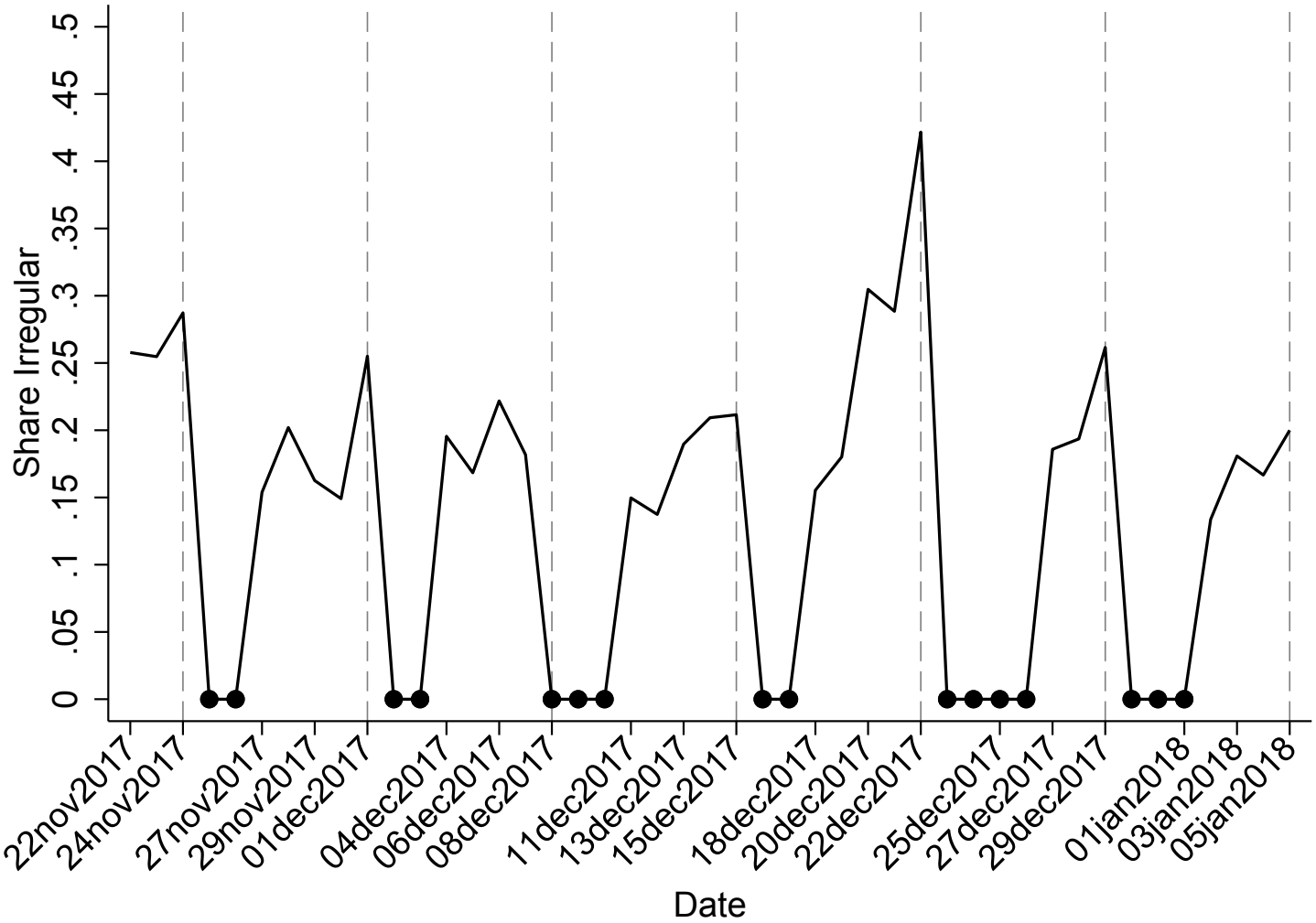
- We use rich administrative data (including work histories) on the universe of sickness leave in public sector (5,500,000 certificates) and workers' career.

- **Identification through randomized *control* experiment on Home Visits (22nd November 2017 - 5th January 2018) across 196 local social security offices.**

Certificate Start and End date



Friday morning (or pre-holiday) fever



Literature review: sickness leave

- Quasi-experiments on effects of sick-leave reforms in countries with generous sickness benefits: Markussen et al. (2011) Godoy-Olsen (2018) Hernaes (2018) on Norway; Engstrom and Johansson (2012) and Bockerman et al. (2018) on Finland; D'Amuri (2011) and Scognamiglio (2019) in Italy.
- Very little with randomized experiment: Hesselius (2005 and 2013) on Sweden (maximum period of leave without certificate).

- Literature on the effects of contagious presenteeism (Pichler and Ziebarth, 2017) and on mandated sick leave (McLean et al. 2020)

- Literature on job security and absenteeism in the private sector in italy (Ichino and Ripahn, 2005)

- Literature on enforcement of tax collection: Kleven et al. (2011), De Neve et al. (2020), Bergeron et a. (2020) on Congo.

Our contribution

1. Focus on enforcement.
2. Population wide experiment.
3. Evidence of effects of audits on careers in the public sector.
4. Role of implicit sanctions.

Data

Record linkage of three administrative sources, released by INPS:

1. A dataset containing all the certificates sent to Inps from 2016 to September 2018 for the public sector.
2. A dataset containing all the HV visits made by Inps since 2017 including the randomized visits.
3. A brand new dataset that we use for the first time called POS.PA on Italian public employees containing precise information on employment and wages at monthly level from 2016 to 2018.

We restrict the sample to workers with at least one positive wage between May and October 2017.

Italy as an ideal case study

- 2010 OECD classified Italy as a country with lenient sickness certificate requirements.
- Evidence of strategic behaviour: concentration of absences just before week ends and holidays.
- Low labor productivity by international standards, notably in the public sector (OECD, 2015). Low productivity related to absenteeism (De Paola, 2014).
- Public sector is highly unionized: few layoffs even if worker found to register presence while being absent (only 117 firing in 2018 out of 3,2 million employees).
- Legislation on absence from work tightened several times in the last decades. Shift from local to national administration in enforcement.

Institutional setting: monitoring

- Before November 2017, INPS was carrying out own HVs limited to private sector employees.
- Since november 2017, INPS performed Home Visit (HV) monitoring for private and public sector employees.

Home Visits

- Two types of HVs (each type accounting for about one half of the total):
  1. *employer-called visits* (ECV) (visite datoriali).
  2. *INPS-called visits* (ICV) (visite d'Ufficio).

- **We focus on INPS-Called visits**, that are under the INPS complete control.
- The mandate of the doctor is strictly to report to INPS the health status of the individual, checking the consistency with the certificate and with the associated time period (no treatment nor therapy should be provided during the visit).
- There are no automatic sanction if worker found irregularly on leave. Public Employers in charge to determine the sanction (up to dismissal).

IC visits: *Status quo* in the private sector

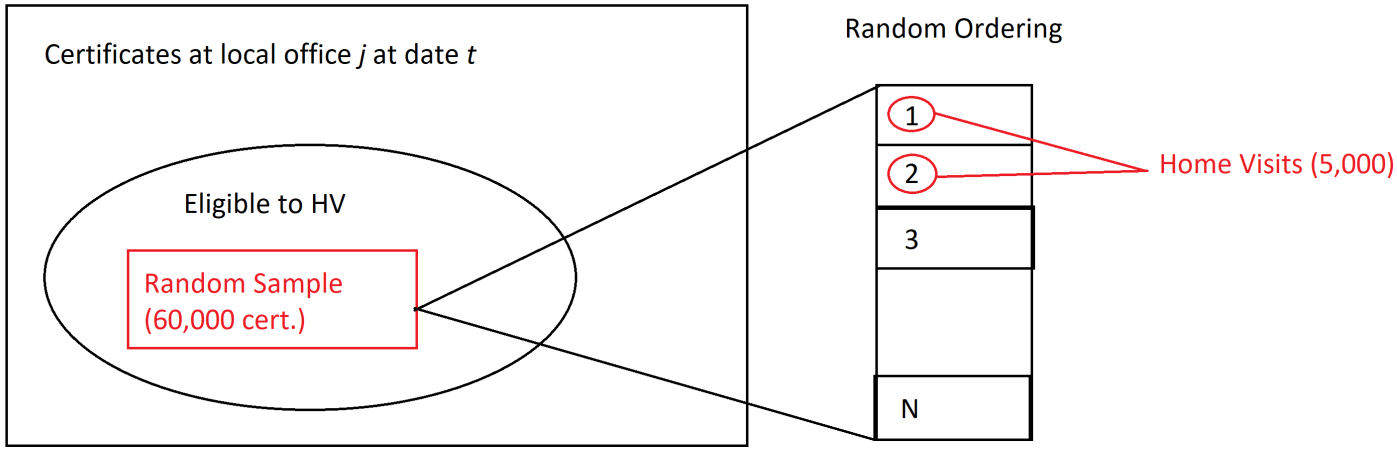
IC visits for private employees based on algorithm (SAVIO). Procedure involves several steps:

1. Algorithm selects a random sample of ongoing certificates (to reduce numerosity).
2. Algorithm excludes exempt (e.g. cancer) certificates.
3. Among the non-exempt, a second sample is drawn and a machine learning ranking is computed, to identify a priority order to maximize detection of irregularities.
4. Matching of visits to doctors to minimize costs (minimizing distances).

Experimental Design in the Public Sector

- The experiment only alters the third step of the ICV assignment procedure, by randomizing the priority order of certificates for ICV.
- Doctors not aware of the change in the procedure: behaviour not affected by the experiment (no *Hawthorne effect*).
- Under Savio, full compliance of doctors with the rule. No change in the practice under the experiment.
- About 4,200 visits, and about 43,000 employees involved in the experiment.

Experimental Design

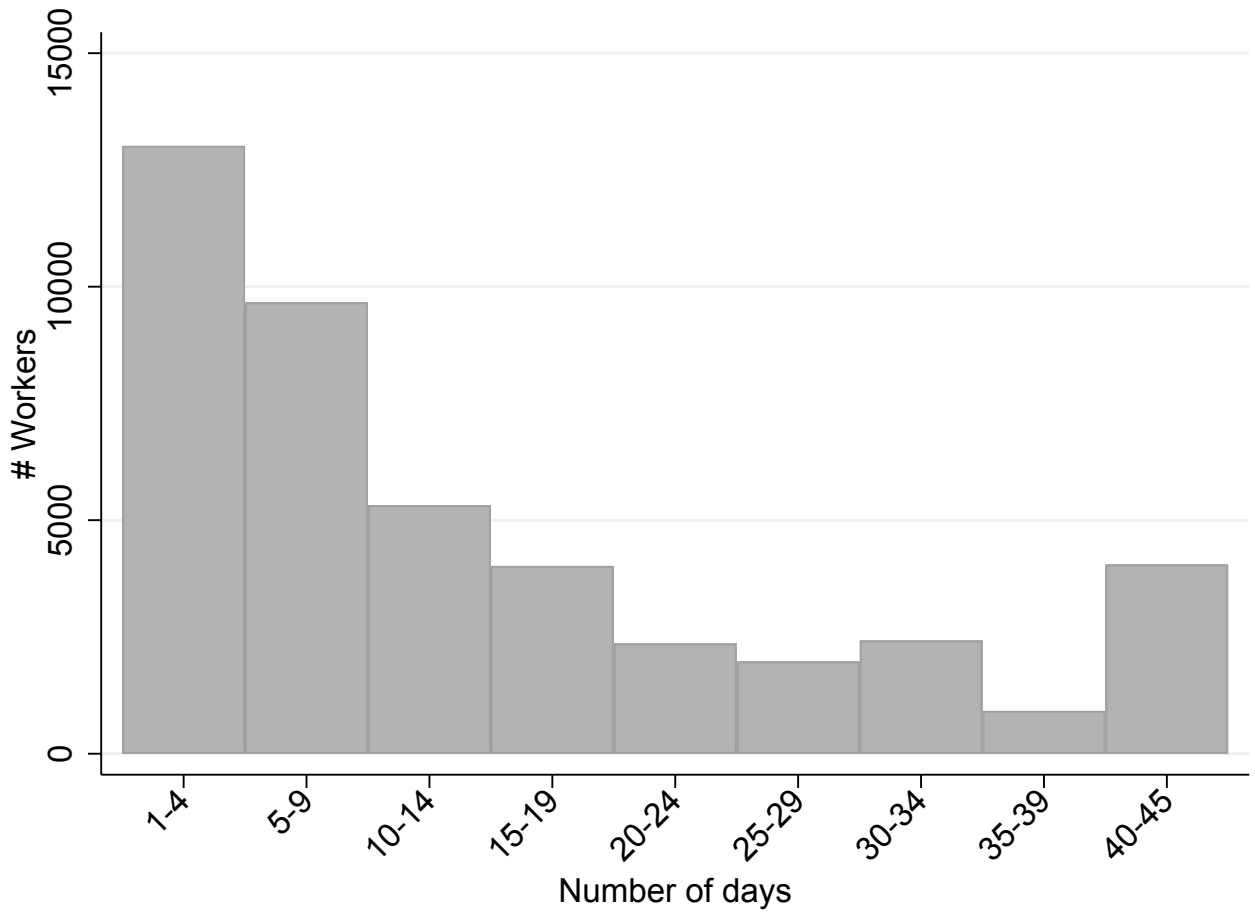


Caveat in the empirical strategy

- Two main issues:
  - Certificates remain in the sample for their duration or until the ICV: their probability of being sampled increases with the duration of the certificate.
  - Randomization at certificate level, not at individual level: individuals might be sampled again if they send more certificates. Treatment probability increases with the number of certificates sent.
- **Solution**: identification preserved by controlling for the duration of the certificate and the overall time spent on sickness leave in the period of the experiment.

Individuals by number of days in the period of the experiment

Certificates



Summary statistics: Individuals Certificates

Variables	Average	Se	Minimum	Median	Maximum
Female	0.724	0.447	0	1	1
Age	53.423	8.463	24	55	67
North	0.394	0.489	0	0	1
Center	0.177	0.381	0	0	1
South	0.429	0.495	0	0	1
School and University	0.396	0.489	0	0	1
Central Administration	0.061	0.239	0	0	1
Local Administration	0.234	0.423	0	0	1
Health Sector	0.310	0.462	0	0	1
Permanent Contract	0.948	0.222	0	1	1
Part Time	0.060	0.238	0	0	1
(log) Mean Monthly Earnings	7.658	0.338	0	8	10
Days on sick leave in following 16 months	48.859	70.354	0	21	551
Certificates in following 16 months	6.180	7.439	0	4	190
Average Certificate duration in following 16 months	7.509	8.980	0	4	92
Number of Certificates (bef. exp.)	2.332	3.107	0	1	57
Number of Days (bef. exp.)	21.827	35.898	0	5	315
Mean Duration Certificate (bef. exp.)	6.754	10.217	0	3	92
Home Visits and outcome: individual					
Individual subject to Home Visit	0.096	0.294	0	0	1
Outcome Home Visit: Regular	0.076	0.265	0	0	1
Outcome Home Visit: Irregular	0.020	0.138	0	0	1
Home Visits and outcome: certificate					
Certificates subject to Home Visit	0.073	0.260	0	0	1
Outcome Home Visit: Regular	0.058	0.234	0	0	1
Outcome Home Visit: Irregular	0.014	0.119	0	0	1
# Workers	43718				

Balancing: Normalized differences at individual level

Individual | Certificate

Variable	Avg Treatment	Avg Contol	Se Treatment	Se Control	Normalized Difference
Female	0.740	0.722	0.438	0.448	0.029
Age: 36-40	0.051	0.055	0.219	0.228	-0.014
Age: 41-45	0.091	0.095	0.287	0.293	-0.010
Age: 46-50	0.139	0.141	0.346	0.349	-0.005
Age: 51-55	0.192	0.204	0.394	0.403	-0.022
Age: 56-60	0.235	0.243	0.424	0.429	-0.013
Age: 61-65	0.226	0.204	0.419	0.403	0.039
Age: 66-67	0.039	0.022	0.193	0.147	0.070
Central Admin.	0.066	0.060	0.249	0.237	0.018
Local Admin.	0.196	0.238	0.397	0.426	-0.072
School	0.447	0.391	0.497	0.488	0.081
Health Sector	0.291	0.312	0.454	0.463	-0.032
Permanent	0.968	0.946	0.176	0.226	0.078
Part Time	0.050	0.061	0.217	0.240	-0.037
(log) Mean Monthly Earnings	7.676	7.656	0.350	0.337	0.041

- Normalized Difference: $\Delta = \frac{\hat{X}_t - \hat{X}_c}{\sqrt{S_t^1 + S_c^2}}$; Critical value: 0.25.

Empirical strategy

- Regression at individual level;

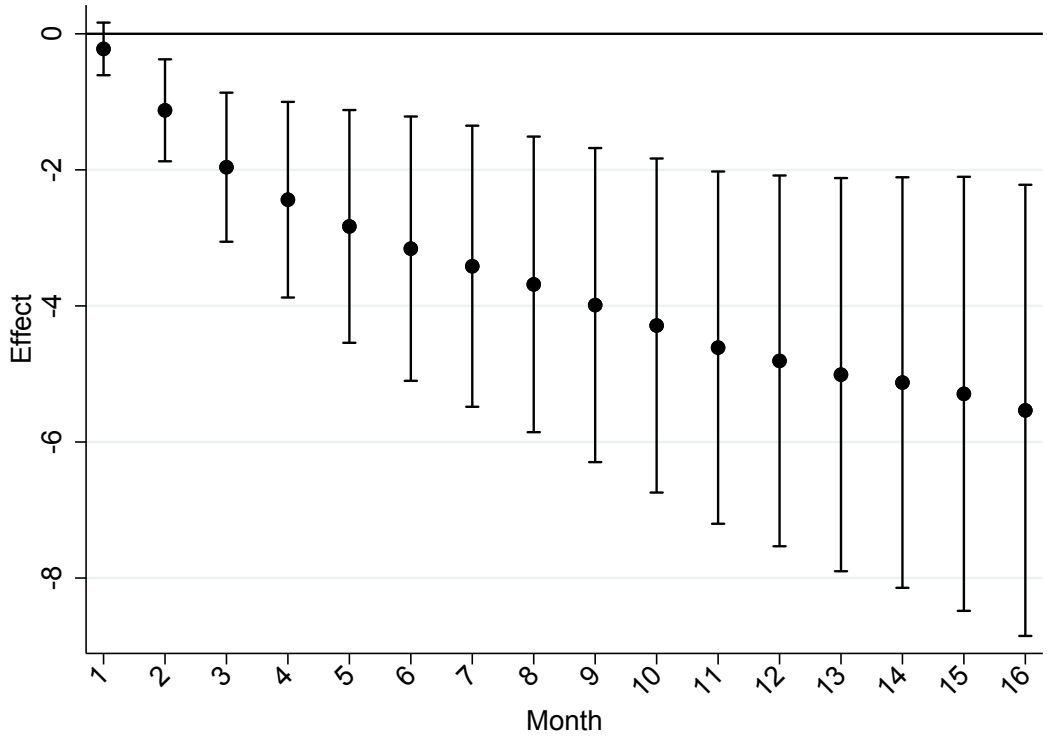
$$\#DaysOnSickness_{ij} = \alpha + \beta Visited_{ij} + X_{ij}\gamma + \delta D_{ij} + \theta_j + \varepsilon_{ij} \quad (1)$$

- Controls include (X_{ij}):
  - Demographics characteristics.
  - Job characteristics.
  - Sickness leave in the six months before experiment (number of certificates, days on sickness leave, average leave duration)

- D_{ij}: control for time spent on leave in the experiment by worker i.
- θ_j is a fixed effect at local office level.
- Standard errors clustered at local office level.

Number of days on sickness leave: Individual

Table Alternative



- Average for controls at 16 months: 47.097 (-11.8%)

Decomposing: Extensive and Intensive Margin

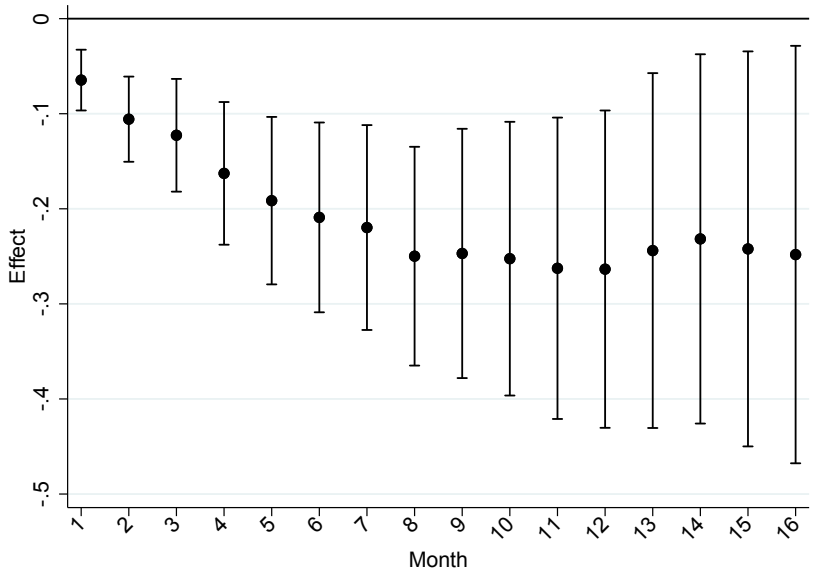


Figure: Cumulative Certificates

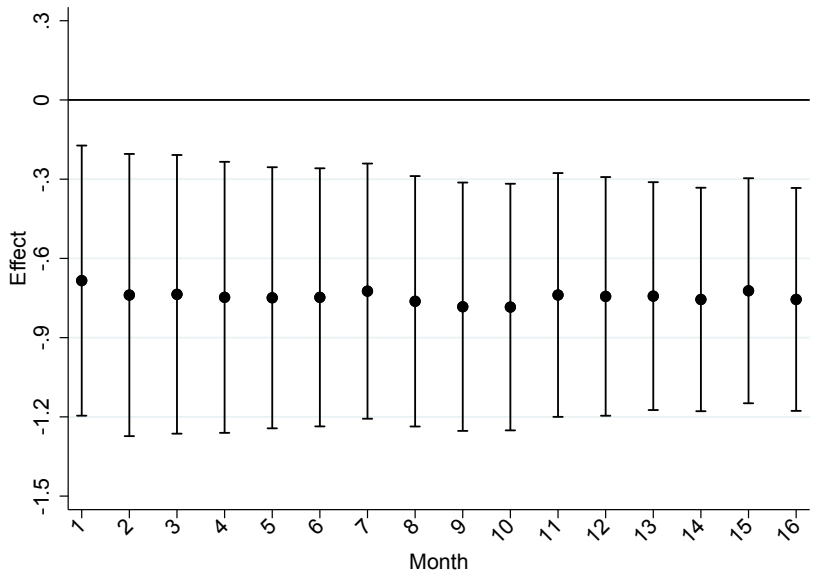


Figure: Average Duration Certificate

- Average for controls at 16 months: 6.169 (-4.1%); 7.211 (-10.4%)

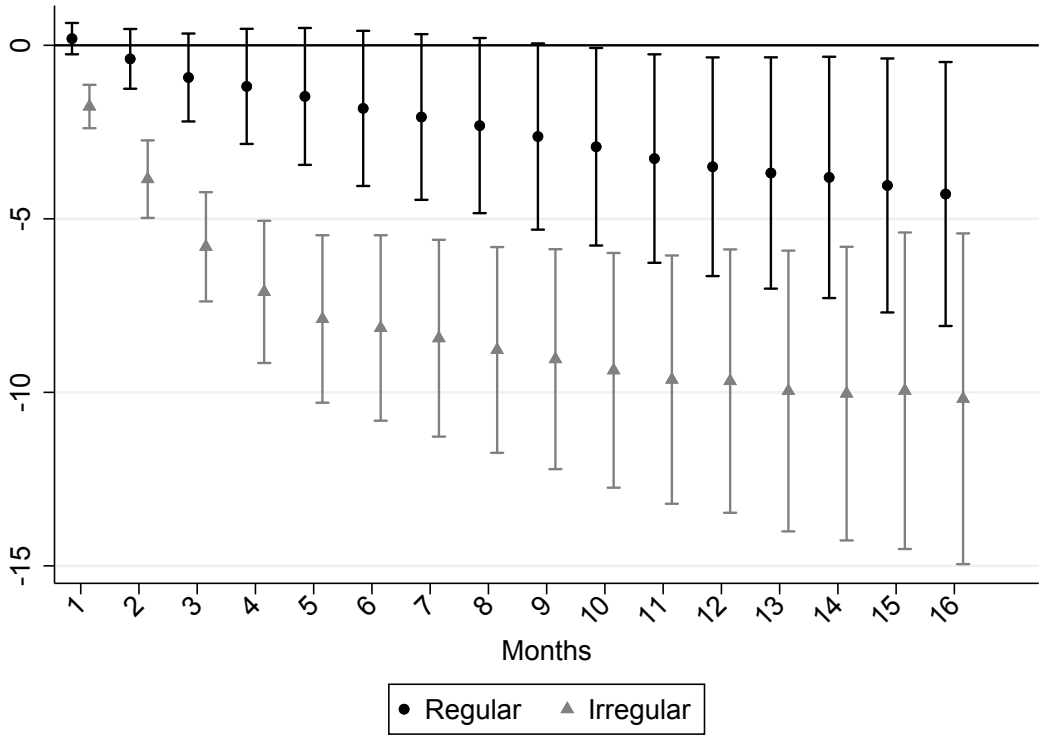
Heterogeneity

Consider several dimensions:

- Sector: Central Administration and Health Sector experience larger drops Graph.
- Temporary and Permanent: clear effect on permanent workers, larger but imprecise for temporary. Graph.
- Gender: very similar responses Graph.
- Geographic area: stronger in the Centre Graph.

Days on sickness leave by Inspection Outcome: Regular vs Irregular

Decomposition IV Description



- Average for controls at 16 months: 47.097
- Day of the week: decline thoughout, stronger on Friday and Saturday Graph. Reduction in certificates sent starting on Monday and ending over week-end Graph.

Career Dimension

Time Pattern

VARIABLES	(1) M. not Public	(2) Tot Earnings 12 Months	(3) Tot Earnings 16 Months	(4) Old Age Pension	(5) Disability Benefit
Outcome visit: Irregular	0.118	-543.762**	-581.433	-0.005	-0.009**
	(0.129)	(269.835)	(381.260)	(0.006)	(0.005)
Outcome visit: Regular	-0.088	79.839	156.562	-0.005	-0.001
	(0.066)	(177.302)	(242.882)	(0.003)	(0.003)
Observations	43,092	43,092	43,092	43,092	43,092
Mean Dep	1.361	27423.88	35439.403	.024	.013
Demographics	YES	YES	YES	YES	YES
Past Cert.	YES	YES	YES	YES	YES
Sede FE	YES	YES	YES	YES	YES
Date FE	YES	YES	YES	YES	YES

CBA: Back of the Envelope for Net Costs (1)

- A *random* visit reduces days on sickness leave by 5.5 days over 16 months.
- Costs: between 25 and 50 Euro. We use 50 and provide a lower bound.
- Savings in terms of sick leave benefit per Euro spent:

$$\frac{5.5 * Daybenefit}{50} = \frac{5.5 * \frac{\widetilde{w_m}}{DayMonth}}{50} = 9$$

- Net savings per Euro spent:

$$\text{NG} = \frac{\beta * \frac{\widetilde{w}}{DayMonth} - Cost}{Cost} = \frac{5.5 * \frac{2111}{26} - 50}{50} = 8$$

- Targeting Irregular with Machine Learning (Savio; 40% detection rate instead of 20%): 9.9 Euro of net savings.

CBA: Marginal Value of Public Funds (2)

- Provide a normalized metric to compare policies (compares willingness to pay and government costs): Hendren, and Sprung-Keyser (2020) and Finkelstein and Hendren (2020).
- Net government cost: for each Euro spent, savings of 9 Euro. Net cost is -8 Euro.
- Willingness to pay: benefits lost by worker. As a compensation for receiving the visit they would like to receive the equivalent of the lost benefits: 9 Euro.
- Marginal value of public funds:

$$MVPF = \frac{WTP}{NGC} = \frac{-9}{-8} = 1.13 \tag{2}$$

Conclusions

- Literature on sick pay focused on the benefit structure.
- Very little on enforcement, we demonstrate that enforcement is crucial for the sick leave benefit system, and to assess its optimal setting.

- We find that monitoring reduces significantly sick leave claims.
- Effects come from lower number of sick leave spells and shorter duration. Effects stronger for those found irregularly on leave.
- Detectable effects in 12 months.

THANKS!

(and beware of INPS doctors)